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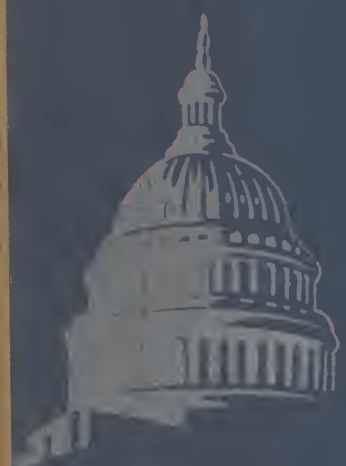

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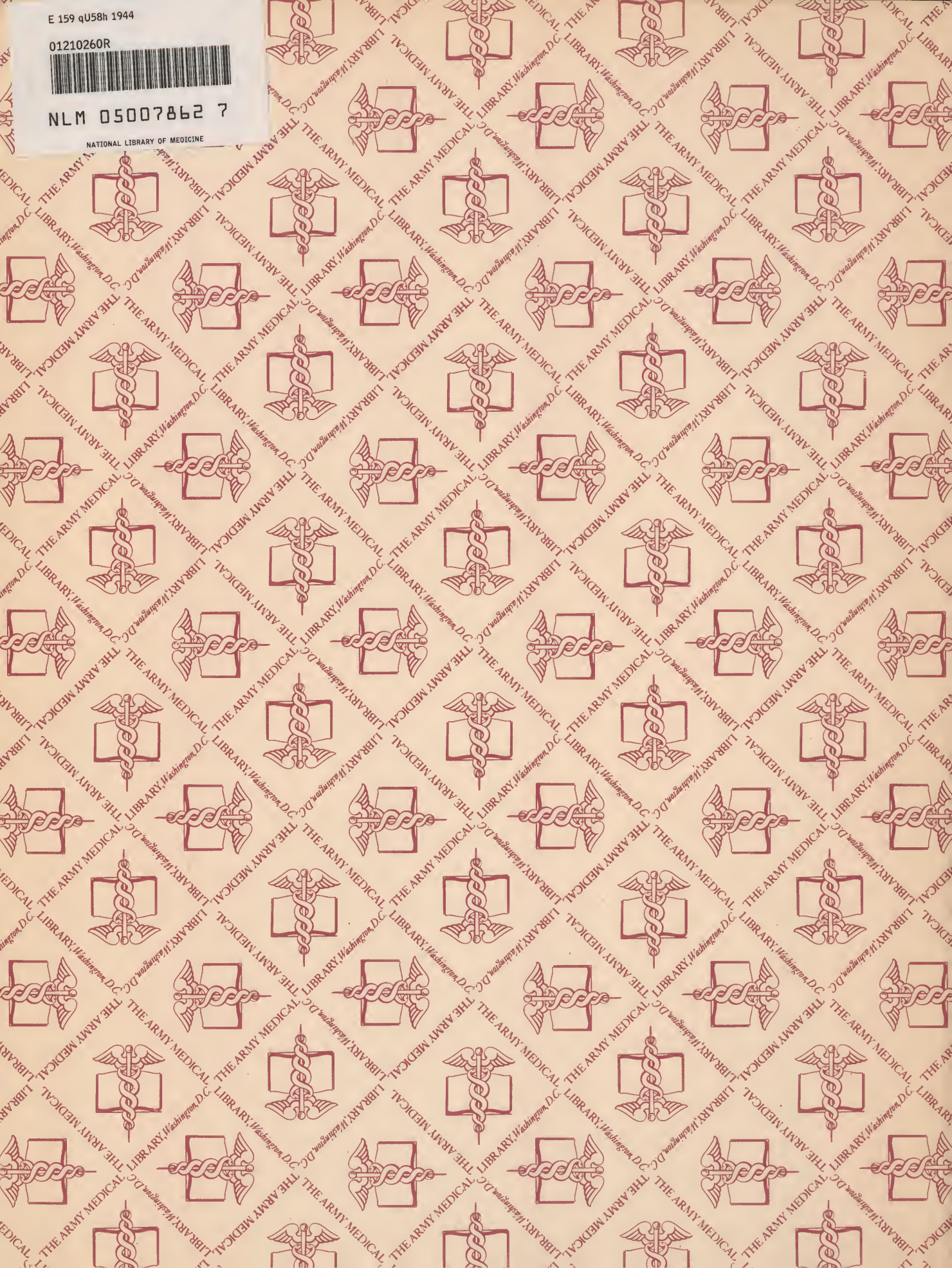

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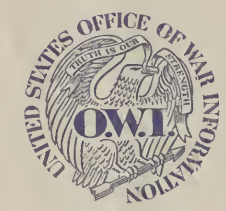

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FOREWORD

* * *

This Handbook of the United States has been especially prepared for use overseas. All the material in it has been selected on that basis. It is intended both for reference and for dissemination through the press, radio, or other means, at the discretion of the outpost men.

This is a revised edition of the Handbook. Unless otherwise stated, facts and figures are as of September 1, 1943. Every effort has been made, through checking with government and other sources, to have them accurate and up to date.

Acknowledgment and thanks are tendered herewith to the many persons both inside and outside the government service whose aid and guidance have been of value in the preparation of this work.

In the hope that it will be of continuing value, this revised Handbook is offered to our colleagues overseas by the Publications Division of the Overseas Branch of OWI.

—The Editors

403396

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THE GOVERNMENT OF THE UNITED STATES

THE CONSTITUTION

LEGISLATIVE
THE CONGRESS

SENATE HOUSE

Architect of the Capitol
United States Botanic Garden
Government Printing Office
Library of Congress

PERMANENT STAFF AGENCIES
Executive Office of the President
The White House Office
Bureau of the Budget
Liaison Office for Personnel Management

EXECUTIVE
THE PRESIDENT

EMERGENCY WAR AGENCIES
Executive Office of the President
- Office for Emergency Management (For agencies coordinated through OEM, see listing in lower right hand corner of chart)

Office of Economic Warfare [1]
Joint Boards and Committees (See listing in lower right hand corner of chart)
National Housing Agency
- Federal Home Loan Bank Administration
- Federal Housing Administration
- Federal Public Housing Authority

Office of Censorship
Office of Price Administration
Petroleum Administration for War
President's War Relief Control Board

JUDICIAL
THE SUPREME COURT OF THE UNITED STATES

Circuit Courts of Appeals of the United States
District Courts of the United States
United States Court of Claims
United States Court of Customs and Patent Appeals
United States Customs Court
Territorial Courts

DEPARTMENT OF STATE
Office of the Secretary
Office of the Under Secretary
- Liaison Office

Office of Foreign Relief and Rehabilitation Operations [1]
Offices of the Assistant Secretaries (4)
Office of the Legal Adviser
Office of the Executive Officer
Offices of the Advisers on Political Relations (4)
Office of the Adviser on International Economic Affairs
- Office of the Consultant on Petroleum Matters

Caribbean Office
Division of Commercial Affairs
Division of Commercial Policy and Agreements
Division of Cultural Relations
Division of Current Information
Division of Defense Materials
Divisions of European, Far Eastern, and Near Eastern Affairs and of the American Republics
Division of Exports and Requirements
Division of Foreign Service Administration
Division of Foreign Service Personnel
Division of International Communications
Division of International Conferences
Division of Protocol
Division of Research and Publication
Division of World Trade Intelligence
Financial Division
Foreign Funds Control Division
Office of Philippine Affairs
Office of the Chief Clerk and Administrative Assistant
Office of the Geographer
Passport Division
Special Division
Visa Division

DEPARTMENT OF THE TREASURY
Bureau of the Comptroller of the Currency
Bureau of Customs
Bureau of Engraving and Printing
Bureau of Internal Revenue
Bureau of the Mint
Bureau of Narcotics
Committee on Practice
Division of Monetary Research
Division of Research and Statistics
Division of Tax Research
Fiscal Service
- Office of Fiscal Assistant Secretary
- Bureau of Accounts
- Bureau of the Public Debt
- Office of the Treasurer of the United States

Foreign Funds Control
Legal Division
Office of Administrative Assistant to the Secretary
Procurement Division
United States Secret Service
War Savings Staff

WAR DEPARTMENT
Office of the Secretary
Office of the Under Secretary
Office of the Assistant Secretary
Office of the Assistant Secretary for Air
Office of the Chief of Staff
The General Staff
The Special Staff
Office of the Commanding General, Army Air Forces
Office of the Commanding General, Army Ground Forces
Office of the Commanding General, Army Service Forces

DEPARTMENT OF JUSTICE
Office of the Attorney General
Office of the Solicitor General
Office of the Assistant to the Attorney General
Office of the Assistant Solicitor General
Office of the Pardon Attorney
Antitrust Division
Tax Division
Claims Division
Lands Division
Criminal Division
War Division
Customs Division
Administrative Division
Federal Bureau of Investigation
Bureau of Prisons
Immigration and Naturalization Service
Board of Immigration Appeals
Board of Parole

POST OFFICE DEPARTMENT
Office of the Postmaster General
- Office of Budget and Administrative Planning
- Office of the Chief Clerk and Director of Personnel
- Office of the Purchasing Agent
- Office of the Solicitor

Bureau of the First Asst. Postmaster General
- Offices of Deputy First Assistant PMG (2)
- Divisions of Post Office Service (4)
- Administrative Aide

Bureau of the Second Asst. Postmaster General
- Division of Railway Mail Service
- Division of International Postal Service
- Division of Railway Adjustments
- Division of Air Mail Service

Bureau of the Third Asst. Postmaster General
- Division of Finance
- Division of Money Orders
- Division of Classification
- Division of Stamps
- Division of Registered Mails
- Division of Postal Savings
- Division of Parcel Post

Bureau of the Fourth Asst. Postmaster General
- Division of Engineering and Research
- Division of Post Office Quarters
- Division of Motor Vehicle Service
- Division of Equipment and Supplies
- Division of Federal Building Operations
- Division of Topography
- Division of Traffic
- Mail Equipment Shops

Bureau of the Chief Inspector
- Division of War Services
- Division of Administrative Investigations
- Division of Mail Investigations
- Division of Financial Investigations

Bureau of Accounts
- Division of Cost Ascertainment
- Division of Retirement Records
- Division of Postmasters' Accounts
- Division of Public Building Accounts

DEPARTMENT OF THE NAVY
Office of the Secretary
Office of the Under Secretary
Office of the Assistant Secretary
Office of the Assistant Secretary for Air
Executive Office of the Secretary
Office of the Chief of Naval Operations
Bureau of Yards and Docks
Bureau of Naval Personnel
Bureau of Ordnance
Bureau of Ships
Bureau of Supplies and Accounts
Bureau of Medicine and Surgery
Bureau of Aeronautics
Headquarters United States Marine Corps
United States Coast Guard

DEPARTMENT OF THE INTERIOR
Office of the Secretary
Bituminous Coal Division
Bonneville Power Administration
Fish and Wildlife Service
United States Board on Geographical Names
Geological Survey
Grazing Service
Office of Indian Affairs
Division of Information
General Land Office
Office of Land Utilization
Solid Fuels Administration for War
Office of Fishery Coordination
Bureau of Mines
National Park Service
Petroleum Conservation Division
Division of Power
Bureau of Reclamation
Office of the Solicitor
Division of Territories and Island Possessions
Puerto Rico Reconstruction Administration
War Resources Council

DEPARTMENT OF AGRICULTURE
Office of the Secretary
War Food Administration
- Commodity Credit Corporation
- Extension Service
- Food Distribution Administration
- Food Production Administration
  - Agricultural Adjustment Agency
  - Farm Security Administration
  - Federal Crop Insurance Corporation
  - Soil Conservation Service
- Office of Materials and Facilities

Agricultural Research Administration
- Bureau of Agricultural and Industrial Chemistry
- Bureau of Animal Industry
- Bureau of Dairy Industry
- Bureau of Entomology and Plant Quarantine
- Bureau of Human Nutrition and Home Economics
- Agricultural Research Administration (Cont'd)
- Bureau of Plant Industry, Soils, and Agricultural Engineering
- Office of Experiment Stations
- Beltsville Research Center

Farm Credit Administration
Forest Service
Rural Electrification Administration
Bureau of Agricultural Economics
Office of Budget and Finance
Office of Foreign Agricultural Relations
Office of Information
Office of Personnel
Office of Land Use Coordination
Office of the Librarian
Office of the Solicitor
Office of Plant and Operations

DEPARTMENT OF COMMERCE
Office of the Secretary
Civil Aeronautics Board
National Invantors Council
Bureau of the Census
Bureau of Foreign and Domestic Commerce
Civil Aeronautics Administration
Coast and Geodatic Survey
Inland Waterways Corporation
National Bureau of Standards
Patent Office
Weather Bureau
Government activities under direction and supervision of the Secretary of Commerce:
- Export-Import Bank of Washington [1]
- Reconstruction Finance Corporation
  - Disaster Loan Corporation
  - The RFC Mortgage Company
  - Federal National Mortgage Association
  - Metals Reserve Company
  - Rubber Reserve Company
  - Defense Plant Corporation
  - Defense Supplies Corporation
  - War Damage Corporation
  - Rubber Development Corporation [1]

DEPARTMENT OF LABOR
Office of the Secretary
Office of the Solicitor
Bureau of Labor Statistics
Children's Bureau
Division of Labor Standards
United States Conciliation Service
Wage and Hour and Public Contracts Divisions
Women's Bureau

FEDERAL SECURITY AGENCY
Office of Federal Security Administrator
Food and Drug Administration
Office of Community War Services
Office of Education
Public Health Service
- Freedmen's Hospital
- Saint Elizabeth's Hospital

Social Security Board
American Printing House for the Blind
Columbia Institution for the Deaf
Howard University

OFFICE FOR EMERGENCY MANAGEMENT
Board of War Communications
Committee on Fair Employment Practice
National War Labor Board
Office of Alien Property Custodian
Office of Civilian Defense
Office of the Coordinator of Inter-American Affairs
Office of Defense Transportation
Office of Economic Stabilization
Office of Lend-Lease Administration [1]
Office of Scientific Research and Development
Office of War Information
Office of War Mobilization
War Manpower Commission
- Bureau of Selective Service

War Production Board
War Relocation Authority
War Shipping Administration
Foreign Economic Administration

FEDERAL WORKS AGENCY
Office of Federal Works Administrator
Public Buildings Administration
Public Roads Administration
Public Works Administration
War Public Works Program
War Public Services Program
Grand River Dam
Federal Fire Council

INDEPENDENT OFFICES AND ESTABLISHMENTS
AMERICAN BATTLE MONUMENTS COMMISSION
BOARD OF INVESTIGATION AND RESEARCH - TRANSPORTATION
COMMISSION OF FINE ARTS
DISTRICT OF COLUMBIA
FEDERAL BOARD OF HOSPITALIZATION
FEDERAL COMMUNICATIONS COMMISSION
FEDERAL DEPOSIT INSURANCE CORPORATION
FEDERAL POWER COMMISSION
FEDERAL RESERVE SYSTEM (BOARD OF GOVERNORS OF THE)
FEDERAL TRADE COMMISSION
GENERAL ACCOUNTING OFFICE
INTERSTATE COMMERCE COMMISSION
NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
NATIONAL ARCHIVES, THE
NATIONAL CAPITAL HOUSING AUTHORITY
NATIONAL CAPITAL PARK AND PLANNING COMMISSION
NATIONAL LABOR RELATIONS BOARD
NATIONAL MEDIATION BOARD
OFFICE OF THE BITUMINOUS COAL CONSUMERS' COUNSEL
RAILROAD RETIREMENT BOARD
SECURITIES AND EXCHANGE COMMISSION
SMITHSONIAN INSTITUTION
TAX COURT OF THE UNITED STATES, THE
TENNESSEE VALLEY AUTHORITY
UNITED STATES CIVIL SERVICE COMMISSION
UNITED STATES EMPLOYEES' COMPENSATION COMMISSION
UNITED STATES MARITIME COMMISSION
UNITED STATES TARIFF COMMISSION
VETERANS ADMINISTRATION

JOINT BOARDS AND COMMITTEES
United States and Canada:
- Joint Economic Committees
- Joint War Production Committee
- Material Coordinating Committee
- Permanent Joint Board on Defense

United States and Great Britain:
- Combined Chiefs of Staff
  - Munitions Assignments Board
- Combined Food Board
- Combined Raw Materials Board
- Combined Shipping Adjustment Board

United States, Great Britain, and Canada:
- Combined Production and Resources Board

Joint Chiefs of Staff, United States
- Office of Strategic Services

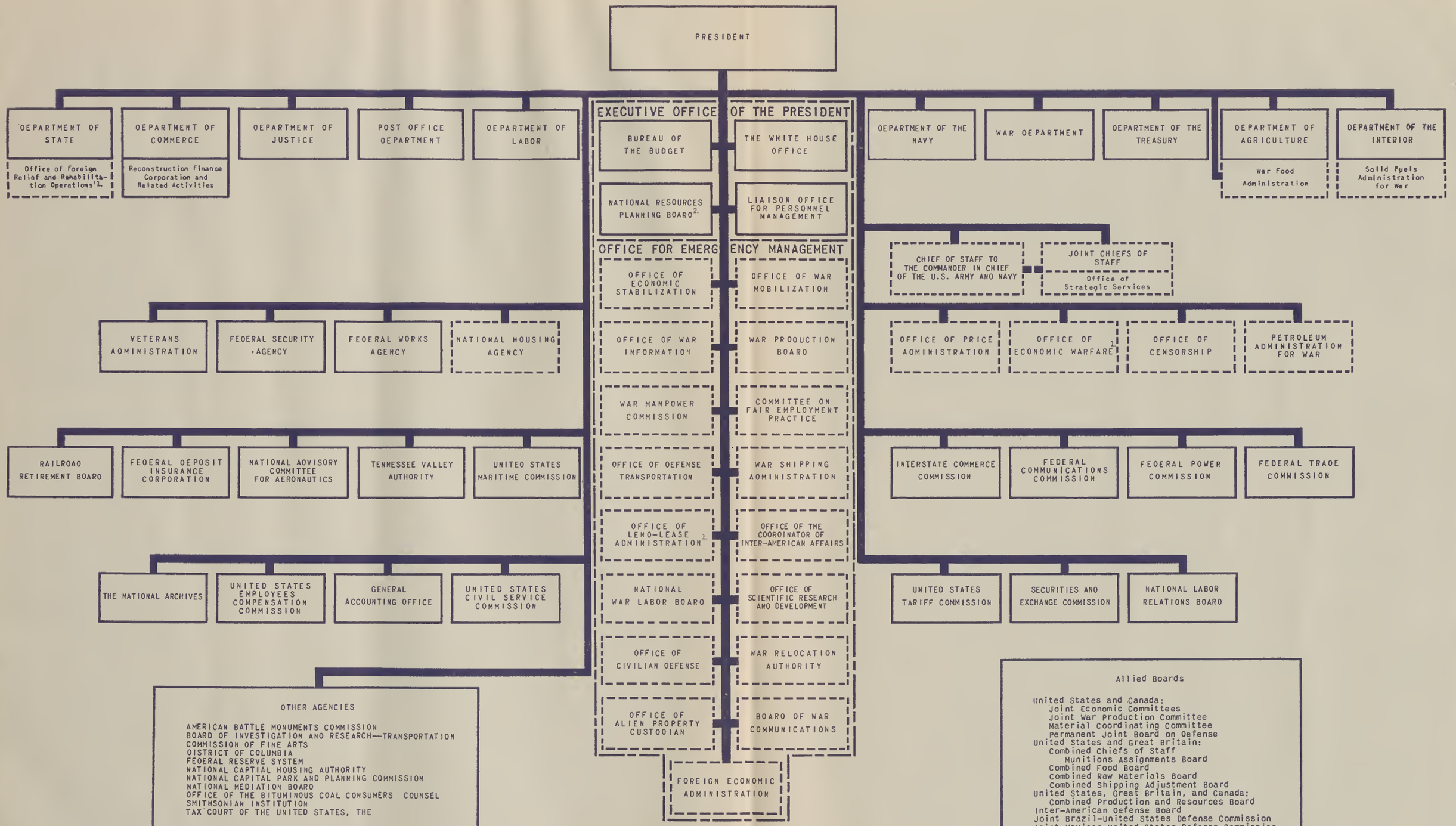
Joint Brazil-United States Defense Commission
Joint Mexican-United States Defense Commission
Inter-American Defense Board
Pacific War Council

This chart shows the principal agencies of the federal government, and their divisions, charted under that branch of the government of which their functions are most representative.

[1] Duties, functions, and powers transferred to the Foreign Economic Administration in the OEM by executive order of the President September 25, 1943

Compiled June 1943 by Office of War Information. For further information see the U.S. Government Manual, for sale at $1.00 a copy by the Superintendent of Documents, Washington, D.C.

UNITED STATES GOVERNMENT - EXECUTIVE BRANCH



[1] Duties, functions, and powers transferred to the Foreign Economic Administration in the OEM by executive order of the President September 25, 1943.

[2] Congress did not reappropriate funds for this board at the end of 1942-43 fiscal year.

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SECTION I

THE NATIONAL GOVERNMENT OF THE UNITED STATES

The United States is, in many respects, a young country. Yet the government of the United States is one of the older governments in the world; among major national powers only England has had a longer consecutive history with its present form of government.

The United States lives under the oldest written constitution—that written in 1787 and formally established in 1789. For over a century and a half the American people have remained steadfast in their adherence to the principles of democracy, republicanism, and constitutionalism.

THE PARTY SYSTEM

The United States Government is based upon a written constitution, but many of the instruments and practices which characterize government in the United States cannot be found in the Constitution. Many customs and practices have developed since the Constitution went into effect; these are part of the unwritten Constitution.

Of these, by far the most important is the institution of political parties. The Constitution provides for elections but not for parties. Yet political parties have played a role of major importance since the elections of 1796. Throughout almost the entire history of the country, therefore, the election of the officers of government and many of the governmental practices and procedures have been fundamentally affected by the principles and practices of political parties.

Throughout most of U. S. history the political scene has been dominated by two major parties, although there have usually been several minor parties in existence at the same time. With rare exceptions the two major parties have divided most of the votes in national elections, and only occasionally has one of the third parties been able to elect more than two or three members of Congress. It is important to note, however, that the minor parties have frequently contributed ideas which were subsequently adopted and effectuated by the major parties.

The bulk of the Constitution is contained in its first three articles. These deal respectively with the legislative, the executive, and the judicial powers. In form the U. S. Government is one of separated or divided powers. In its practical everyday workings there is much more cooperation between departments than one would gather from a simple reading of the constitutional document. This cooperation is secured in very large part through political parties. The President is usually a member of the party which controls Congress.

THE FEDERAL SYSTEM

It is also to be remembered that the government here described is the national, or as it is frequently called, the federal government. The 48 state governments, with political structures fundamentally similar to that of the national government, possess wide powers within their own areas. The Constitution grants only limited and specific powers to the national government, and all powers not specifically delegated to it remain with the states. Among the powers specifically delegated to the national government are those to tax, control the monetary system, regulate foreign and interstate commerce, conduct foreign relations, make war and peace, regulate territories, and admit new states. In addition Congress is authorized "to make all Laws which shall be necessary and proper for carrying into Execution the foregoing Powers." Throughout American history these grants of power have been broadly interpreted by the President and Congress, and this broad interpretation has generally been sustained by the Supreme Court. In effect the national government in the United States has power to meet national needs and conform to popular will.

These objectives have for the most part been attained by a process of cooperation between the national and the state governments. Federalism in the United States has sometimes been a story of disputes over the relative powers of the states and the Union, but more often it has been a more reassuring though less spectacular story of cooperative work for the attainment of common objectives.

THE STATE GOVERNMENTS

The United States consisted originally of 13 states. The Constitution provided that "New States may be admitted by the Congress into this Union," and under the provisions of the Northwest Ordinance of 1787—re-enacted by the first Congress, all states so admitted were to come in "on an equal footing with the original States in all respects whatever." Under these wise and farsighted provisions the United States increased from 13 to 48 states.

Under the Constitution the United States guarantees to each state a republican form of government; aside from this, each state is free to establish its own form of government and to conduct such experiments as may seem desirable. Actually most state constitutions are modeled upon those of the original 13 states: Only one state, for example, has substituted a unicameral for a bicameral legislature.

There is much greater variety, however, in local government which is in every instance determined by the states. In some states the township is the principal unit of local government, in others the county, in still others a combination of the two.

Town and city government, too, varies widely. The majority of towns and cities are governed by a mayor and council, but a great many cities have adopted the city manager or the commission form of government.

CONGRESS AND SUFFRAGE

Congress consists of a House of Representatives and a Senate, both of which are now elected by direct popular vote. Suffrage in the United States, although differing slightly from state to state, is broad, with no religious or property qualifications. Some states, however, retain a small tax qualification for voting, and some others have a literacy test. No state may deny or abridge the right to vote on account of race or color, but some states have managed to disqualify Negroes from the polls by indirect means.

An increasing percentage of the American people exercises the privilege of voting. Approximately 50 million persons voted in the presidential election of 1940.

The House of Representatives

The House of Representatives is composed of 435 members, apportioned to the states on the basis of population, and elected for two-year terms. It is interesting and important to note that these elections have always been held regularly, even in time of war, not only when, as in 1942, the fighting was going on far away from the American polling booths, but also in 1862 and 1864, when the major battlefield was only a few miles south of the national capital.

The representatives are chosen ordinarily by geographical districts within the states, but the states may elect members "at large." By almost invariable custom a member lives in the district from which he is elected. An average constituency today is 300,000 persons, but there are wide disparities in the size of districts. By laying out districts within a state in peculiar shapes, one party sometimes gains a decided advantage. Thus the House mirrors the will of the people with reasonable accuracy, though not without some distortion.

The House of Representatives because of its size has long felt the need of firm leadership in conducting its business, but a satisfactory solution of this problem has been very difficult to find. The Speaker of the House, a member chosen by the dominant party, is the most powerful source of leadership. While he conducts the proceedings of the House with a high degree of impartiality, he also leads the majority and exercises large control over what the House will do. But he shares his leadership not only with a "majority leader" and a Committee on Rules, who have wide power over what business the House will consider, but also with the majority members of the influential Committees on Ways and Means (revenues), and on Appropriations, and with the chairmen of the more important committees of the House.

Chairmanship of the committees within the House is automatically determined by the principle of "seniority," the member of the majority party with the longest continuous service on the committee becoming chairman.

The Senate

The Senate now consists of 96 senators elected for terms of six years, two from each state in the Union. Because of its smaller size, the Senate has been able to retain a parliamentary procedure in which debate and deliberation are virtually without limitation. Yet the Senate's business usually flows smoothly. The longer tenure of senators also gives them a certain freedom from merely transient demands.

The Senate derives from the Constitution certain powers which enhance its position. It can amend bills from the House of Representatives. In appointing all the chief officers of the national government the President must have the consent of the Senate. Although the President negotiates all treaties with foreign nations, treaties must be ratified by two-thirds of the Senate. The Vice President presides over the Senate, but he does not lead it as the Speaker does the House.

In the House of Representatives a parliamentary procedure has been evolved which enables the leaders to control the presentation of business, the time spent in debate, and the amendments that may be proposed. Congress has also saved time and quickened action by the use of specialization, through the creation of a number of standing committees which must consider all bills introduced pertaining to a certain subject before they are presented to the entire chamber. Increasingly since the last war the Executive Branch has sought and been given unusual delegations of authority. Thus Congress may indicate a general policy and formulate standards to be followed by an administrator but leave to him broad discretion in filling gaps in the statute, and formulating policy. The present (78th) Congress, however, has shown greater interest in defining the limits of executive authority.

Congress has provided that the President shall submit an annual budget, but has retained unlimited power not only to decrease the funds requested but to appropriate more than are asked for by the Chief Executive. At the same time the committees handling appropriations in Congress are separate from those which must prepare the tax bills to raise the funds required. Congress, to keep check on the expenditure of the money it has appropriated and on the general administration of the government, commonly makes use of special investigating committees. (See *Bureau of the Budget.*)

THE PRESIDENCY

To meet the demands of an ever more complex society, the presidency has experienced more development than any other branch of the government. The first great change occurred early, in the manner of choosing the President. Originally, each state was to choose a group of electors equal to the number of its senators and representatives in Congress. These electors would then vote for President. But the rise of parties nullified this plan. Today political parties each nominate their candidate for President by national party conventions, and the people choose one of these men by voting for electors pledged to support that presidential candidate.

Thus, although the forms of an indirect election have persisted—through unwritten law the electoral college always ratifies the choice of the voters—the President is chosen directly by the people.

The President of the United States cannot be likened accurately to the leader of any other government. He is first of all the head of the state, with many ceremonial duties, both important and trivial. He represents the government of the United States to all foreign nations, and in the framing of foreign policy he, with his Department of State, assumes major responsibility.

In time of war his powers are especially great, for he is Commander in Chief of all U. S. armed forces. He is also the "administrative chief" of the government, and almost all federal administrative officials are responsible ultimately to him, as he in turn is responsible for their actions to the people, for the President is charged with the duty of seeing that the laws are "faithfully executed."

Finally, the President has a share in the legislative power as well, for the Constitution gives him power to veto any bill Congress may pass. And any bill so vetoed cannot become law unless two-thirds of both Houses vote to override the President's veto.

This outline of the constitutional powers and duties of the President does not fully comprehend the nature of the presidential office. Once direct election was established, the President became peculiarly the spokesman and leader of the people. Later developments of transportation and communication, especially the radio, have made his contact with the people even closer and more personal. In time of war and emergency the people tend to look to the President for leadership.

Even in less critical periods, the nation in the twentieth century has come to expect the President to take the lead in formulating general domestic policies for the country. Increasingly the President has become a legislative leader, setting a definite program before Congress, and using his influence to secure its enactment into law. In order to do this the President has had to exercise his influence as leader of his party. Jackson, Lincoln, Theodore Roosevelt, and Wilson all understood this principle and put it into practice.

Emergency Powers

One of the important means by which the war potential of the United States is mobilized is through the exercise by

the President of his special war and emergency powers. Many of these powers are derived directly from the Constitution, which gives to the President broad authority to take those steps necessary to preserve the national safety. In addition, many powers exercised by the President in time of national emergency or of war are conferred on him by act of Congress.

Constitutional Powers

The constitutional provision that "The Executive Power shall be vested in a President of the United States of America," is the basis upon which the authority of the President rests. Included within this executive power are all the powers necessary to enable him to carry out his duty to "take care that the Laws be faithfully executed" and to fulfill his oath that he will "to the best of his ability, preserve, protect, and defend the Constitution of the United States."

In time of war, one of the most important elements of the executive power is derived from the specific constitutional provision that the President shall be the Commander in Chief of the Army and of the Navy of the United States. This gives him not only the final decision in the conduct of actual military operations, but also empowers him to take other necessary emergency steps in order to insure that those operations will be successful.

It is impossible to define exactly all the elements of the executive power during wartime, because the scope of this power depends so largely upon the magnitude of the emergency confronting the nation. The emergency powers of the President can best be explained by describing some of the most noteworthy examples of the exercise of those powers.

Abraham Lincoln, who took office at a time when Congress was not in session and when rebellion was spreading swiftly through the Southern states, issued a call for volunteers, increased the size of the regular Army and Navy, authorized the seizure of property of private citizens wherever it was indispensable to the successful prosecution of the war, ordered the blockade of Southern ports, and proclaimed the emancipation of the slaves—all without specific legislation.

At his direction, Postmaster General Blair closed the mails to certain newspapers which publicly advocated that the federal government accede to the demands of the Confederacy. A Congressional committee, investigating this action, concluded that the President not only had the authority, but that it was his positive duty to close the mails in such cases.

Several Presidents have been forced to use these constitutional powers to protect American shipping. Thus John Adams in 1798 authorized the arming of American merchantmen to resist attacks which were being made upon U. S. commerce, and in 1801 President Jefferson sent a squadron of frigates into the Mediterranean to protect America's commerce against the Barbary brigands. Naval vessels were ordered to sea to protect the U. S. merchant marine by Buchanan in 1858 and by Lincoln in 1861, with no Congressional authorization. Without specific legislative authority blockades were established along the Mexican coast by Polk in 1846, along the Southern coast by Lincoln in 1861, and before certain Cuban ports in 1898 by McKinley.

These are all examples of the type of special emergency powers which the President must exercise when he finds that the national safety demands such action.

In more recent times, Presidents, in the emergency of war or of threatened war, have had to take sudden and drastic steps to preserve the national strength. In the last war, for instance, when President Wilson found that the national safety demanded an immediate control of messages entering and leaving the country, he ordered a strict censorship of all foreign cable, telephone, and telegraph messages, solely on his authority as Commander in Chief. Before the United States entered the present war, President Roosevelt found it necessary to direct the Secretary of War, by executive order, to take over the plant of the North American Aviation Company and to produce the airplanes called for by its government contracts because it was apparent that a strike there was seriously hampering the national defense.

The transaction of business with foreign nations—which, as Jefferson said, "is executive altogether"—is also a very important element in determining the war policies and actions of the United States. Even in the process of making a formal treaty, which must, of course, be ratified by the Senate, all preliminary negotiations are completely in the hands of the President or his agents. In time of war or of international emergency, it is the President's duty to make clear, by declaration or by agreement with representatives of other nations, the policy which the United States intends to pursue with regard to the war or the emergency.

The proclamation of the Monroe Doctrine in the President's message to Congress of 1823 is perhaps the most famous example of the exercise of executive power in the field of foreign relations. Although announced by President Monroe with no legislative authorization, this Doctrine, which has served as a warning to any European or Asiatic nation whose actions threaten the liberty and safety of any independent government on either of the American continents, has from the time of its announcement to the present day been one of the fundamentals of U. S. foreign policy.

The executive power in the field of foreign affairs is not limited to the mere declaration of policy. It may be expressed in international agreements to meet immediate and practical issues.

Under such an agreement the U. S. Government in September 1940 transferred 50 destroyers to Great Britain in return for leases of important naval bases on British territory in the Western Hemisphere. In transmitting to Congress copies of the notes which had been exchanged, the President explained this action by pointing out that, "Preparation for defense is an inalienable prerogative of a sovereign state. Under present circumstances this exercise of sovereign rights is essential to the maintenance of our peace and safety."

Often when the President has been forced to use his emergency powers, he has asked that Congress specifically approve and authorize these acts. Thus, the action of President Jefferson in sending the American fleet into the Mediterranean to wage war against Tripoli was communicated to Congress at the opening of its next session, and Congress thereupon gave its authorization to the hostilities.

Similarly, all the orders and proclamations of President Lincoln, increasing the size of the Army and Navy and calling out volunteers, were, by later act of Congress, "approved and in all respects legalized and made valid, to the same intent and with the same effect as if they had been issued and done under the previous express authority and direction of the Congress of the United States."

During the last war President Wilson, with no statutory authority, ordered Herbert Hoover, the Chairman of the Committee on Food Supply and Prices, to take all necessary steps to further the saving of food and the curtailing of waste, because he believed it essential to our war effort that the program be started immediately. Shortly thereafter Congress passed the Food and Fuel Control Act, which not only confirmed the powers the President had already exercised but also authorized him to take many other steps necessary to guarantee an adequate supply of food and fuel at reasonable prices.

Since the start of the present war, Congress has similarly ratified an order of President Roosevelt which gave the Secretary of War and certain military commanders the power to set up military areas, to exclude any or all persons therefrom, and to impose restrictions "in his discretion" on the right of any person to enter, remain in, or leave such an area. Realizing that this order was necessary because of emergency situations in U. S. coastal areas, Congress recognized its validity and gave it added strength by making it a criminal offense to violate any of the restrictions imposed in such military areas.

The general approval of the American people and the frequent Congressional recognition and ratification of presidential action under the emergency powers have conclusively answered the objections of those who would construe the Constitution so narrowly as to make the President powerless in a time of national crisis. As former Chief Justice Hughes once said, "The framers of the Constitution did not contrive an imposing spectacle of impotency. Self-preservation is the first law of national life, and the Constitution itself provides the necessary powers in order to defend and preserve the United States."

Statutory Powers

The conduct of the national defense does not depend entirely or even to a large extent on the special emergency powers of the President. Most of the broad discretionary powers which a President exercises in time of war are given to him by acts of Congress. When the nation is confronted by a threat to its safety, the people and Congress have always recognized that many serious problems will arise which demand a solution so swiftly that they cannot be solved by specific Congressional action.

Trusting in the wisdom of the President to use his powers only to the extent necessary to preserve the nation through these crises, Congress has therefore delegated to him many types of wide and general powers. In some instances the grants of power have been only temporary, designed to meet an immediate but passing need. In others they have remained a part of the body of federal law, as a reserve of legislative preparedness for the emergencies of national defense.

From the early history of the country comes, for instance, the Act of 1798, which empowers the President in time of war or of threatened invasion to apprehend and detain enemy aliens. In answering objections to the breadth of power given the President by this act, the chairman of the committee which had drafted it explained that, "It would be impossible for Congress to describe cases in which aliens . . . ought to be punished; but the President would be able to determine this matter by his proclamation."

This recognition by Congress of the necessity of providing for the President a wide sphere of discretionary action in certain types of emergency cases where the specific problems cannot be foreseen has continued throughout the national history, and has been one of the greatest elements in the success with which American democracy has been able to meet crises.

It has been recognized throughout U. S. history that in wartime, when there is not the time to go through the ordinary processes of bargaining and contract, it may be necessary for the government to take the property of a citizen for military purposes upon the payment of its fair value. Before the national government had been formed General Washington was given the power by the Continental Congress "to take wherever he may be, whatever he may want for the use of the Army, if the inhabitants will not sell it, allowing a reasonable price for the same."

In the last war the President was empowered to take over and operate any factories or industries necessary for the production of military supplies if the owners refused to produce war supplies for the government. An almost identical statute was passed in September 1940, even though the United States was then still at peace, because of the necessity of swiftly strengthening the country's defenses.

A very broad requisitioning statute was passed a few months before America's entrance into the present war. This act applies to a wide range of military or naval equipment and to the tools and materials necessary to produce or operate that equipment. If the need for a particular piece of property is immediate, if there is no other source of supply, and if it cannot be obtained upon fair and reasonable terms, the President "is authorized to requisition such property upon the payment of fair and just compensation and to dispose of such property in such a manner as he may determine is necessary for the defense of the United States."

Another type of presidential power which has been found necessary during time of war is the authority to prohibit commercial intercourse with enemy nations. As U. S. international commercial relations have become ever more complex, it has been necessary for Congress to delegate broader powers in this field. Within two weeks after the United States entered the present war, the First War Powers Act gave to the President complete discretion to regulate or prohibit any transactions whatsoever involving any property in which any foreign nation or citizen of a foreign nation has any interest.

As the mechanization of armies has increased, mobilization of manpower for the armed forces has had to be matched by mobilization of the nation's physical and industrial resources. Today this discretionary control of the President over the nation's business and industry has expanded until he has a power of life and death over almost every enterprise in the nation. He may order factories to produce certain specified articles and nothing else; he may permit them to purchase certain raw materials in certain quantities for certain purposes, or he may cut them off entirely; he may designate the persons to whom they may sell and the quantities they may sell.

In the present war, several sweeping delegations of power have been made to enable the President to minimize the dislocation of civilian economy which mobilization for modern warfare inevitably entails. Among these, for instance, is the act of October 2, 1942, which authorizes and directs the President "to issue a general order stabilizing prices, wages, and salaries, affecting the cost of living."

This act contains, of course, certain limitations on the power of the President and certain directives of policy which the Congress wishes him to follow; but by and large, it delegates to the President the power to take any steps he deems necessary to prevent inflation and resulting economic hardships. It constitutes a recognition by Congress that such a problem can be solved only by day-to-day decisions, as new difficulties arise which must be solved instantly and effectively.

A delegation of power of a new type was made to the President in the emergency which preceded entrance of the United States into the present war. Although the nation was not yet involved in hostilities, the people of America and the members of Congress saw clearly that the national safety depended on the continued resistance of the democratic nations which were fighting a gallant struggle against the aggressors. For this reason, the United States desired to supply those nations with arms and other necessary supplies even though they no longer had the money to pay for them. It was evident that such a program could not be carried through by numerous specific statutes. Under the Lend-Lease Act, therefore, the President is empowered "when he deems it in the interest of national defense" to authorize the manufacture or procurement of any defense

article "for the government of any country whose defense the President deems vital to the defense of the United States."

The terms and conditions upon which such aid is to be given are to be "those which the President deems satisfactory," and the benefit to the United States may be payments, repayments in kind, or "any other direct or indirect benefit which the President deems satisfactory."

THE JUDICIARY

Just as the United States has a dual system of government (state and federal) so it has a dual judicial system. The Constitution provides for a Supreme Court, and such inferior courts as Congress "may from time to time" establish. In the Judiciary Act of 1789 Congress did establish a complex system of inferior courts. Each state, in turn, has its own judicial system, and the state courts enforce the Constitution and laws of the United States as well as those of the state. To insure uniform interpretation of the Constitution and laws of the United States, provision is made for appeal from state to federal courts.

The nine Justices of the Supreme Court and the Judges of the lower federal courts (circuit courts of appeals and district courts) hold office for life during good behavior, and therefore have complete independence. But they, like nearly all the important administrative officials of the government, are chosen by the President with the consent of the Senate. Many Supreme Court Justices have had a long previous experience in legislative and executive positions.

Federal courts have for almost a century and a half declared statutes void because they conflicted with provisions of the Constitution. In over 70 cases the U. S. Supreme Court has held acts or sections of acts of Congress invalid, and there have been some 700 cases in which state statutes have been held void because of conflict with the federal Constitution. The invalidation of one law may block the passage of many similar laws, so that judicial review has important political effects.

The work of the federal courts, and particularly of the Supreme Court, is therefore not merely to settle private legal disputes, but involves decisions upon issues of high public policy. Every time the Court invalidates a national law it is giving an interpretation of the Constitution different from that held by Congress and often by the President as well. The provisions of the Constitution, moreover, are broad, so that differences of opinion upon the proper interpretation have occurred constantly throughout American history.

In such circumstances it is not strange that the Supreme Court has often been vigorously criticized for its constitutional decisions. Even so, there has never been great public support for abolishing or even restricting judicial review.

In recent years the Supreme Court, after bitter controversy, has approved many new national laws regulating economic life. The Court has considerably extended the protection given to civil liberties, and has continued to spend a very large part of its time upon the interpretation and application of Congressional statutes. To a much greater extent than was true a generation ago, it has been concerned with the manner in which administrative officials use their delegated powers. Another difficult problem has been that of distinguishing between state and federal jurisdiction—in the realm of commerce, for example—and of preventing the encroachment of state upon federal and of federal upon state authority.

The present membership of the Supreme Court follows:

Chief Justice.....Harlan F. Stone

Associate Justices

Owen J. Roberts	William O. Douglas
Hugo L. Black	Frank Murphy
Stanley Reed	Robert H. Jackson
Felix Frankfurter	Wiley Rutledge

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EXECUTIVE AGENCIES

Ten departments and a number of independent agencies carry on the administrative work of the government. The departments, headed by Cabinet officers, are: Department of State, Treasury Department, War Department, Department of Justice, Post Office Department, Navy Department, Department of the Interior, Department of Agriculture, Department of Commerce, and Department of Labor. The Federal Security Agency and the Federal Works Agency function as departments inasmuch as they each control a number of bureaus, but they are not headed by Cabinet officers. The independent agencies are not under any department.

To meet special wartime needs, a number of emergency war agencies have been established. Some of these are constituent units of the Executive Office of the President and others are independent agencies responsible directly to the President.

Space limitations make impossible a complete account of all executive agencies in this handbook. Emphasis is therefore placed upon those more directly concerned with the war effort. A few, such as the War and Navy Departments, are discussed in other sections of the book, to avoid duplication and because their activities are so closely related to the subject matter of other articles. In those cases, references are given to the other sections. For further information about all agencies, see the U. S. Government Manual.

Because many agencies are referred to by their initials, the following list is given here for quick reference.

COMMONLY USED ABBREVIATIONS FOR GOVERNMENT AGENCIES

AAA	—Agricultural Adjustment Agency
ACAA	—Agricultural Conservation and Adjustment Administration
ARA	—Agricultural Research Administration
BAE	—Bureau of Agricultural Economics
BLS	—Bureau of Labor Statistics
BWC	—Board of War Communications
CAA	—Civil Aeronautics Administration
CAB	—Civil Aeronautics Board
CCC	—Civilian Conservation Corps; Commodity Credit Corporation
CCS	—Combined Chiefs of Staff, U. S. and Great Britain
DPC	—Defense Plant Corporation
DSC	—Defense Supplies Corporation
FBI	—Federal Bureau of Investigation
FCA	—Farm Credit Administration
FCC	—Federal Communications Commission
FDA	—Food and Drug Administration
FDIC	—Federal Deposit Insurance Corporation
FEA	—Foreign Economic Administration
FHA	—Federal Housing Administration
FPC	—Federal Power Commission
FPHA	—Federal Public Housing Authority
FRS	—Federal Reserve System
FSA	—Farm Security Administration; Federal Security Agency

Commonly Used Abbreviations For Government Agencies—*(cont'd)*

FTC —Federal Trade Commission
FWA —Federal Works Agency
HOLC —Home Owners' Loan Corporation
ICC —Interstate Commerce Commission
NACA —National Advisory Committee for Aeronautics
NDMB —National Defense Mediation Board
NHA —National Housing Agency
NLRB —National Labor Relations Board
NRPB —National Resources Planning Board
NWLB —National War Labor Board
NYA —National Youth Administration
OAPC —Office of Alien Property Custodian
OCD —Office of Civilian Defense
OCIAA —Office of the Coordinator of Inter-American Affairs
ODT —Office of Defense Transportation
OEM —Office for Emergency Management
OES —Office of Economic Stabilization
OOC —Office of Censorship
OPA —Office of Price Administration
OSRD —Office of Scientific Research and Development
OSS —Office of Strategic Services
OWI —Office of War Information
OWM —Office of War Mobilization
PAW —Petroleum Administration for War
PWA —Public Works Administration
REA —Rural Electrification Administration
RFC —Reconstruction Finance Corporation
SCS —Soil Conservation Service
SEC —Securities and Exchange Commission
SPARS —Women's Auxiliary Reserve, U. S. Coast Guard
SSB —Social Security Board
SSS —Selective Service System
TVA —Tennessee Valley Authority
USDA —U. S. Department of Agriculture
USES —U. S. Employment Service
USHA —U. S. Housing Authority
USMC —U. S. Marine Corps
WAC —Women's Army Corps
WAVES —Women Appointed for Volunteer Emergency Service (U. S. Naval Reserve)
WMC —War Manpower Commission
WPA —Work Projects Administration
WPB —War Production Board
WRA —War Relocation Authority
WSA —War Shipping Administration

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DEPARTMENT OF STATE

Created July 27, 1789—Secretary of State, Cordell Hull

The Department of State is charged with carrying on negotiations with foreign countries, including the making of commercial and other agreements, treaties, etc. It is responsible for formulating foreign policy except in cases where this is done by the President himself. It handles correspondence with representatives of foreign powers and operates embassies, legations, and consulates all over the world. It is responsible for the issuing of passports and visas. It also publishes U. S. Statutes at Large.

The work of the department is directed by the Secretary of State, who is the highest-ranking member of the Cabinet, and who follows the Vice President in order of succession. Should the President and Vice President both die, the Secretary of State would become President. The Secretary is assisted by an Under Secretary (Edward R. Stettinius, Jr.), four Assistant Secretaries of State, and a number of special advisers. The administrative work is carried on by about 45 divisions. At the present time, among the most important are:

GEOGRAPHIC AND OTHER DIVISIONS

Much of the work of the department is done in the four geographic divisions: the Divisions of Far Eastern Affairs, of European Affairs, of Near Eastern Affairs, and of the American Republics. In these offices, expert desk men confer with the staffs of foreign diplomatic missions at Washington, correlate and analyze data on conditions and trends in the countries of their specialization, recommend policies and actions with a view to advancing long-term interests of the United States and bringing closer the attainment of order in international relations, and draft appropriate instructions and telegrams to diplomats and consuls in foreign countries.

Other State Department divisions and offices, whose designations describe their duties succinctly, are:

Caribbean Office
Division of Commercial Affairs
Division of Cultural Relations
Division of Current Information
Division of Defense Materials

Geographic and other Divisions—*(cont'd)*

Division of Exports and Requirements
Division of Foreign Service Administration
Division of International Communications
Division of International Conferences
Treaty Division
Division of World Trade Intelligence
Foreign Service Officers' Training School
Office of the Geographer
Passport Division
Visa Division

FOREIGN SERVICE

Almost every division and office throughout the department receives and studies reports from the world-wide U. S. Foreign Service and prepares directions for the conduct of negotiations and other action in the field. The Foreign Service is thus a two-way channel of department operations.

The staff of an American embassy or legation in another land generally consists of an ambassador or minister who represents the government and people of the United States, a group of Foreign Service officers (appointed to the service on the basis of one of the most searching competitive examinations ever devised for the selection of government personnel), military and naval attachés, officers of the Foreign Service Auxiliary (assigned to special economic and cultural work directly connected with the war), and trained clerical assistants. Diplomatic representatives of the United States are accredited to virtually all the United Nations and to some 20 other countries in Europe, Africa, Latin America, and Asia.

Consular officers of the Foreign Service are stationed at approximately 250 outposts, on every continent and on islands large and small. These officers assemble information for the use of their government; arrange for the entry and clearance of American ships in foreign ports; aid in evacuating Americans from war-torn areas; and carry out many other assignments, often complex and difficult.

DEPARTMENT OF THE TREASURY

Created September 2, 1789—Secretary of the Treasury, Henry Morgenthau, Jr.

Financial operations of the U. S. Government are conducted through the Treasury Department, which is both a collecting and a disbursing agency. Many other duties and responsibilities are also embraced in the department's functions.

The Treasury collects federal revenues, particularly customs duties and taxes, and floats federal loans. It disburses funds to repay loans, and to pay other government debts of wide variety in accordance with specific appropriations by Congress.

For the federal fiscal year ended June 30, 1943, the staff handled net revenue receipts amounting to about 22 billion dollars and budgetary expenditures amounting to 78 billion dollars. These amounts are in round figures, and, naturally, will increase many times before cessation of world hostilities. (See also *Finance and Trade.*)

FOREIGN FUNDS CONTROL

This division is one of the Treasury's specialized war services. It was established in April 1940, to supervise, under authority of the President, financial or business transactions involving certain foreign countries or their nationals. Its work has been of increasing significance as a factor in economic war. "Frozen" under its direction are credits in this country of all enemy belligerents and of certain nonbelligerents.

Full information on the Treasury's freezing methods was made available to other American nations at the Inter-American Conference on Systems of Economic and Financial Control in Washington in June 1942. It is expected to form the pattern for similar controls by those countries.

War resulted in extension of the operations of the Exchange Stabilization Fund, through which the Treasury furthers the government policy of monetary cooperation with friendly countries. For its foreign-exchange transactions and other activities, the Stabilization Fund has a capital account of 2 billion dollars.

BUREAU OF CUSTOMS

In addition to collecting duties on imports, this bureau has the duty of preventing smuggling. Collectors of Customs are stationed in each of 48 districts, with deputy collectors throughout the United States and its possessions. Customs collections reached a high mark of $602,000,000 in 1929, decreased to $251,000,000 in 1933, and were $388,948,426 for the year ended June 30, 1942.

BUREAU OF INTERNAL REVENUE

This is the largest of the Treasury agencies. It operates through the Income Tax Unit, the Alcohol Tax Unit, the Miscellaneous Tax Unit, and the Intelligence Unit. The last, through its investigation of income-tax frauds, has brought criminals to justice as well as collected money due the government.

BUREAU OF THE PUBLIC DEBT

Loans for both ordinary and war needs of the government are floated and repaid through this bureau. Its divisions are vested with the physical handling of securities, the manufacture and custody of distinctive kinds of paper used for securities and currency, the promotion of the sale of War Savings Bonds and Stamps to the public.

BUREAU OF THE MINT AND THE BUREAU OF ENGRAVING AND PRINTING

Coins and paper currency of the U. S. A. come respectively from these two bureaus. Coinage plants are in Philadelphia, Denver, and San Francisco. In the fiscal year ended June 30, 1942, the Mint, responding to wartime demands, coined 2,114,890,662 pieces of money with a face value of $111,600,180.40. The Bureau of Engraving and Printing meantime was turning out $5,940,680,000 in new paper currency, plus approximately 20,500,000,000 postage stamps and 16,500,000,000 internal-revenue stamps.

LAW-ENFORCEMENT AGENCIES

Maximum effectiveness for law enforcement is sought through maintenance of a coordinating committee. Represented on it are the Secret Service, Bureau of Narcotics, Customs Agency Service, Alcohol-Tax Unit, the Intelligence Unit of the Bureau of Internal Revenue, the Foreign Funds Control Investigative Section, and in times of peace the U. S. Coast Guard. (The Coast Guard is a part of the Navy during wartime.) Resources of all these enforcement agencies were made available for war work immediately after the U. S. entered the war. Prevention of sabotage, espionage, and seizures under the authority of freezing control were among their emergency tasks.

The U. S. Secret Service is charged with protecting the President of the United States, members of his family, and the President-elect at all times and under all conditions. It maintains the integrity of U. S. money, apprehends counterfeiters, and helps enforce various laws concerning the collection or expenditure of public funds, or Treasury Department procedures.

PROCUREMENT DIVISION

Policies of procurement and warehousing are formulated and quantity purchases of materials and supplies are made for the entire government by the Treasury's Procurement Division. One of its important wartime responsibilities has been to purchase all non-military industrial products for distribution under the Lend-Lease Act.

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WAR DEPARTMENT

Established August 7, 1789—Secretary of War, Henry L. Stimson

The War Department is charged with responsibility for organizing, training, and maintaining the Army and certain non-military activities. Among the department's non-military duties are to direct the Corps of Engineers in the improvement of waterways and to form and execute plans for flood control. It is also responsible for the defense, maintenance, and operation of the Panama Canal. The War Department is actually the executive agency under which the Army operates. But its activities are so closely related to those of the Army that in this handbook it is discussed under *Army.*

DEPARTMENT OF JUSTICE

Created June 22, 1870—Attorney General of the United States, Francis Biddle

The Justice Department provides means to enforce federal laws, construes the laws under which other departments act, and furnishes legal counsel in federal cases. It represents the U. S. in legal matters, investigates and detects federal law violations, and supervises the federal prisons.

In the war program, the Department of Justice bears the major responsibility for maintaining internal security. Its duties include counter-espionage and dealing with sabotage; enforcement of the Selective Service and similar wartime statutes; enforcement and administration of all programs affecting alien enemies; the detection and suppression of sedition; investigations of commercial frauds, monopolies, and other restraints upon war production; and the prosecution of virtually all types of civilian offense against the war program.

WAR DIVISION

The War Division was set up within the department in May 1942, to expedite the various war operations in which the department is engaged, including the investigation of passengers on incoming ships from abroad. Functioning directly under this division are the Alien Enemy Control Unit, the Special War Policies Unit, and the Alien Property Unit.

The *Alien Enemy Control Unit* administers all regulations regarding the travel and conduct of aliens of enemy nationality within the United States. From time to time the unit issues orders of the Attorney General regarding the travel and general conduct of alien enemies and defines certain areas in which their movements are restricted. The unit also supervises the operation of the system of Alien Enemy Hearing Boards before which all alien enemies apprehended on charges of disloyalty are granted a hearing. All such cases are reviewed by the unit in Washington and final disposition (release, parole, or internment) rests with the Attorney General.

The *Special War Policies Unit* directs and coordinates policy matters relating to sedition, espionage, and sabotage, and aids in the assembling of evidence and the preparation of cases for prosecutive action. This unit exercises a close scrutiny over the foreign-language press in the U. S. to detect evidence of hostile propaganda or seditious activity. It also administers certain federal statutes relating to the activities of foreign agents.

The *Alien Property Unit* handles all litigation for the Alien Property Custodian.

OTHER BRANCHES

The following are branches of the department whose war activities are closely allied to those of the War Division:

The *War Frauds Unit* cooperates closely with the War Division, although not actually a part of it. Its function is to prosecute frauds in the execution of war contracts.

The *Federal Bureau of Investigation,* in addition to its principal function of investigating and apprehending spies, saboteurs, and other law violators, also conducts programs for the protection of defense plants and the special training of police in war duties.

The *Criminal Division,* through the U. S. attorneys in the various districts, handles Federal Grand Jury investigations and all prosecutions under the Selective Service Act, the espionage, sedition, and similar wartime statutes.

The *Anti-Trust Division* is concerned with the enforcement of the anti-trust laws which regulate strictly certain types of monopolies, trade agreements, cartels, restrictive patent agreements, etc.

The *Lands Division,* through condemnation proceedings, is the government's principal procurement agency in the acquisition of land for military and naval posts, airports, defense plants, etc.

The *Immigration and Naturalization Service* regulates the movements of aliens in and out of the country, provides custody for alien enemies being held in detention, and, through the Border Patrol, guards the land boundaries of the country.

The *Federal Bureau of Prisons* has converted its numerous industrial plants (heavy textiles, shoes, metals, etc.) to the production of war goods exclusively.

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POST OFFICE DEPARTMENT

Established February 20, 1792—Postmaster General, Frank C. Walker

The first post office in America was established on November 5, 1639, in Boston, Massachusetts. Since then the growth of the postal system has been steady and rapid. In 1775 Benjamin Franklin became the first Postmaster General under the Continental Congress, but permanent and specific provisions for the operation of a Post Office Department were not made until the act of February 20, 1792.

The U. S. Postal Service is now one of the largest businesses in the world, employing 302,000 workers with an annual payroll of more than 600 million dollars. There are approximately 43,000 post offices in the United States.

Post Office affairs are directed by the Postmaster General and four Assistant Postmasters General, each of whom directs a number of department activities, which are by no means limited to the carrying of mail. (See *Communications.*)

The handling of letters, printed matter, and merchandise (parcel post) is, however, the department's basic function. Domestic air-mail service was established in 1918, and has revolutionized the rapid transportation of mail over long distances. The parcel-post system has been in operation since 1913.

POSTAL SAVINGS SYSTEM

This system, established in 1910, provides a repository for the use of patrons who do not find it convenient to use savings-bank facilities. Its purpose is strictly savings, and there are no checking or other banking facilities involved. In 1941 the system had on deposit more than $1,300,000,000 representing the savings of some 2,800,000 depositors.

MONEY ORDER SERVICE

This service provides convenient means of transferring funds through the mails or otherwise. A postal money order may be purchased in any amount and made out to an individual or firm, and cannot be cashed by any unauthorized person.

War Savings Bonds and Stamps are on sale at all post offices, which constitute the largest network of sales agencies for these securities.

The task of registering the nearly 5 million aliens in the United States was undertaken for the Department of Justice by the Post Office Department. In addition, registration of approximately 940,000 enemy aliens, subject to special laws and regulations, was handled through the post offices.

DEPARTMENT OF THE NAVY

Established April 30, 1798—Secretary of the Navy, Frank Knox

The Department of the Navy is the administrative agency for the Navy. Under the Secretary's direction, appointed officers are responsible for all combat and logistic operations and for all operating services of the Navy. For full information regarding the department, see the section in the Handbook called *Navy*.

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DEPARTMENT OF THE INTERIOR

Created March 3, 1849—Secretary of the Interior, Harold L. Ickes

It is the responsibility of the Department of the Interior to conserve and protect natural resources for the benefit of the people of the United States.

In wartime, the department's function is to make the surface and underground wealth of the United States available so that the armed forces of the United Nations may have the military supplies they need.

It aids and directs the production of oil; it has explored and put into use deposits of critical and strategic minerals; it generates power for war production from the world's largest hydroelectric power plants; it has developed new methods of treating low-grade ores which previously were uneconomical to process; it aids in the production and proper distribution of coal and coke; and it puts to best war use the public land, water, and timber of the United States.

Its geologists, mineralogists, metallurgists, oil experts, range and livestock managers, power technicians, industrial engineers, and land-management experts, and its scientists in many other fields, are working on dozens of fronts to help supply the war machine of the United Nations.

The department is today made up of ten principal bureaus and a group of smaller agencies. The chief activities of each follow:

GENERAL LAND OFFICE

Oldest of Interior Department bureaus, the General Land Office, established in 1812, maintains control over the public lands and mineral resources in the United States and Alaska. Through its control over the leasing of mineral-bearing lands in the public domain, it has been an important factor in the production of raw materials for peace and for war.

With the advent of national policy calling for conservation rather than unrestricted disposal of the public lands, the General Land Office aided in protecting vast stores of natural resources which today are made available for war purposes. More than 8 million acres of public land have been provided by the General Land Office for use as tank-corps training areas, bombing and artillery ranges, and troop maneuver grounds.

Timber products for military and naval construction also have been made available to the armed forces by the General Land Office from the 2,500,000 acres of forest land under its jurisdiction in Oregon.

OFFICE OF INDIAN AFFAIRS

This agency handles all relations between the federal government and the Indians; directs administration of Indian tribal resources; reclaims and conserves Indian lands; and promotes the health and physical welfare of the Indians. Approximately 400,000 Indians are under the jurisdiction of this office.

In the present war, thousands of Indians, equipped by vocational training afforded by the Office of Indian Affairs, have entered the military services or essential war industries. In addition, portions of Indian reservations have been made available for the resettlement of Japanese evacuated from strategic areas in the United States.

GEOLOGICAL SURVEY

This agency studies surface and underground water resources, investigates mineral deposits, and makes topographic and geologic maps of the United States and Alaska. Its war work involves the discovery of additional sources for vital metals formerly imported from abroad.

BUREAU OF RECLAMATION

This bureau is now assisting in the production of electric power in unprecedented amounts—estimated at 7 billion kilowatt-hours annually. This bureau estimates that a yearly grand total of more than 21 billion kilowatt-hours of electrical energy will be produced by its generating plants by December 1945. The bureau contributed to the building of the world's greatest man-made structures, including Boulder Dam, highest in the world, on the Colorado River between Nevada and Arizona; Grand Coulee Dam, largest concrete structure of its type ever built, on the Columbia River in Washington; and other massive dams which impound the waters for flood control and power developments.

In addition to its great power-production program the bureau, through its system of irrigation projects in semi-arid sections of the United States, makes thousands of acres available for farming.

BONNEVILLE POWER ADMINISTRATION

The Bonneville Power Administration serves as the marketing agent and technical adviser in the development and use of the electricity produced at Bonneville and Grand Coulee Dams on the Columbia River in Oregon and Washington.

Through its operations new industries requiring large amounts of electric current for the manufacture of aluminum and other metals vitally needed in war have been located in the Pacific Northwest. Many municipalities now have lower rates for home and industrial lighting through the sale of Bonneville power direct to public utility districts. Construction of transmission lines carrying the energy into localities far removed from the generators has resulted in the expansion of this service to the public.

DIVISION OF POWER

Coordinating administration of all power-development problems arising on any of the lands under departmental jurisdiction, whether Indian, park, reclamation, grazing, or public-domain areas, the Division of Power provides a unified command for the production of electricity for war purposes.

BUREAU OF MINES

The results of exploration and experiment in the field of minerals and mining are made available by the Bureau of Mines. With its technicians and engineers constantly at work to develop new processes for the speedy production of metals or to discover and develop new sources of raw materials, the bureau already has been able to find replacements for some of the vital war supplies which formerly came from abroad. Increased efficiency in the production of coal also

is being brought about by the bureau through its work in safeguarding the health and safety of the workers in the mines.

Helium, a light, noninflammable war gas on which the United States has a world monopoly, was first developed on a large scale by the bureau at its plant in Amarillo, Texas. Helium today is widely used by the United Nations for the inflation of blimps, barrage balloons, and other military and naval devices. The bureau is now rapidly increasing the capacity of its helium plants and is taking other steps necessary to fulfill the requirements of the fighting forces for this vital material.

NATIONAL PARK SERVICE

Preservation of scenic beauty, protection of animal life, provision for tourist accommodations, construction and maintenance of roadways, and the furnishing of experienced guides in the areas under its jurisdiction are included among the activities of the National Park Service. In addition, it undertakes historical research and the development and preservation of buildings and sites of national historic interest.

The service is also placing many of the national parks at the disposal of servicemen of the United States and its Allies for use as rest camps. Battlegrounds famous in American history have been made available for use as "classrooms" for the study of military tactics. The National Park Service today maintains supervision over 164 separate national units, including parks, monuments, military parks, historical parks, parkways, and recreational areas, containing in the aggregate 21,609,289 acres. Before the war restricted opportunity for travel, more than 21 million persons visited these areas annually.

SOLID FUELS ADMINISTRATION FOR WAR

The administrator maintains close vigil over the production, preparation, marketing, transportation, storage, and use of coal, in order that sufficient quantities of necessary types and grades be available for war industries and civilian use. He also safeguards the conservation of high-grade coals for metallurgical and other specific uses.

BITUMINOUS COAL DIVISION

This division was charged with administrative responsibilities, under the provisions of the Bituminous Coal Conservation Act (1935), to fix minimum and maximum prices for producers of bituminous coal, and to supervise the market-regulatory features of the act in order to keep the bituminous coal-mining industry in a sound operating condition and the markets stabilized, thereby insuring the full use of mine capacity required by the war program.

The Guffey Coal Act, as this act is more commonly known, was extended several times by Congress but was not renewed at the close of the spring 1943 Congressional session. As a result the act, and the division with it, expired on August 24, 1943.

GRAZING SERVICE

Since a considerable portion of the United Nations supply of meat, food, leather, and wool comes from the wide expanses of grazing lands in the West, administration of 142 million acres of the public domain by the Grazing Service forms an important link in the Department of the Interior's chain of activities in mobilizing the nation's natural resources for war. Protection of these grazing areas, used by approximately 12 million cattle and sheep, involves constant watchfulness to prevent depletion of the forage supply and depredations by rodents and other predatory animals, and to provide adequate water supplies for the stock on the range.

FISH AND WILDLIFE SERVICE

Its activities range from scientific laboratory experiments for the development of new forms of food from fish, to procurement of animal furs needed for the protection of fighting forces in cold countries. (See *Conservation.*)

DIVISION OF TERRITORIES AND ISLAND POSSESSIONS

It serves as the clearing house in administering federal activities in Alaska, Hawaii, Puerto Rico, the Virgin Islands, and other U. S. territories.

* * *

DEPARTMENT OF AGRICULTURE

Created May 15, 1862—Secretary of Agriculture, Claude R. Wickard

The department's purpose is to acquire and diffuse practical agricultural information. It provides crop reports, commodity standards, meat inspection, plant and animal disease control, and many other useful services. Created under President Lincoln in the midst of the Civil War, the Department of Agriculture (USDA) has always been profoundly affected in its policies and activities by war. During the last war USDA's scope and duties expanded greatly. The present war is testing a new farm program which has as its aim the production of more foods and more nutritious foods than ever—enough to supply America and to help supply many other nations. (See *Agriculture.*)

WARTIME COMMITTEES

USDA is closely integrated with the war strategy of the United Nations. Secretary Wickard was U. S. Food Administrator from December 6, 1942 to March 25, 1943. He was succeeded by Chester Davis who served until June 28, 1943. The present administrator is Marvin Jones. He is responsible for programs concerned with production and distribution of food, and will make needed recommendations to the Chairman of the War Production Board for materials, equipment, and supplies required by farmers and processors.

A Combined Food Board, which pools the entire food resources of Great Britain and the United States to insure food for the fighting men and civilians of the United Nations, includes Secretary Wickard and R. H. Brand, head of the British Food Mission.

Other important interdepartmental war committees which involve USDA and implement its food production program for United Nations needs are the Combined Fats and Oils Committee (under the Combined Food Board), the Committee of Federal War Agency Representatives, and the War Manpower Commission, which seeks to assure the most effective utilization of manpower for food production without weakening other war efforts.

WAR FOOD ADMINISTRATION

With the appointment of Secretary Wickard as Food Administrator, certain USDA bureaus were re-aligned. Two new administrations, the Food Production Administration and the Food Distribution Administration, each incorporating several existing agencies, were established. These administrations, together with the Commodity Credit Corporation and the Extension Service are now known as the War Food Administration.

Food in this sense means also certain other agricultural products, such as vegetable and animal fats and oils, cotton,

tobacco, wool, hemp, flax, fiber, starches, and sugars. (See also *Foreign Economic Administration.*)

Food Production Administration

This organization is responsible for food production for the United States and her Allies. It incorporates the following agencies:

Agricultural Adjustment Agency (See *Agriculture.*)
Farm Security Administration (See *Agriculture.*)
Soil Conservation Service
Federal Crop Insurance Corporation

Soil Conservation Service work is designed to increase production without injury to the land. Demonstration areas have been established in every major farming area in the United States where erosion-control devices, land-use adjustments, and crop changes are fitted to needs of the land on a field-to-field and farm-to-farm basis.

Local conservation districts are constituted under state laws. At the request of these districts the federal service may provide technicians, land equipment, and give financial assistance.

SCS maintains ten erosion experiment stations in major agricultural regions for practical study of a wide range of land-use problems.

The *Federal Crop Insurance Corporation*, which is now being liquidated, was created in February 1938 to protect policy holders' wheat and cotton crops from seeding to harvest against drought, flood, and other disasters of weather, animal and insect pests, and plant diseases.

Food Distribution Administration

This administration encompasses the principal USDA bureaus concerned with food distribution. Through the Office for Agricultural War Relations it works closely with the Office of Price Administration on domestic rationing, with the director of Foreign Relief and Rehabilitation* on distribution of food abroad, and with the Lend-Lease Administration* on food distribution under the lend-lease program.

The Food Distribution Administration combines the work formerly carried on by the following agencies:

Agricultural Marketing Administration
Sugar Agency
Bureau of Animal Industry (regulatory work)
Office for Agricultural War Relations (sections concerned with food distribution)

Commodity Credit Corporation (See *Agriculture* and *Foreign Economic Administration.*)

Extension Service (See *Agriculture.*)

OFFICE FOR AGRICULTURAL WAR RELATIONS

This is a planning and coordinating office designed to determine and solve agricultural needs and problems related to the war. It assists in adjusting the agricultural program to meet war needs of the United States and Allied nations; it assists lend-lease officials to supply adequate amounts of food and fiber to Allied nations which need them; and it cooperates closely with other government departments so that American agriculture may keep abreast of developments and always be ready to provide needed farm products of all kinds.

AGRICULTURAL RESEARCH ADMINISTRATION

This USDA agency develops and directs research programs, most of them concerned with war projects today. Research is the keystone of the world's changing agronomy, and American farmers plan crops and decide methods on the organized findings passed along to them by USDA. Bureaus under ARA are:

Animal Industry
Plant Industry, Soils, and Agricultural Engineering
Dairy Industry
Agricultural and Industrial Chemistry
Entomology and Plant Quarantine
Human Nutrition and Home Economics
Office of Experiment Stations
Beltsville Research Center

BUREAU OF AGRICULTURAL ECONOMICS

This is USDA's general program-planning agency. It takes a major part in agricultural postwar planning, and in developing a unified wartime program encompassing land use, conservation, production adjustment, farm tenancy, rural rehabilitation, marketing, and regulatory work. It synchronizes farm production with carefully ascertained wartime needs.

FARM CREDIT ADMINISTRATION

This agency gives farmers a public source of credit at reasonable rates on a sound appraisal basis. It supplies credit for farmers' cooperative-marketing and supply-purchasing associations. For the purpose of making agricultural credit available to farmers, the country is divided into 12 farm-credit districts. Representatives of the following major credit units are located in each central office:

Federal Land Bank
Production Credit Corporation
Bank for Cooperatives
Federal Intermediate Credit Bank

RURAL ELECTRIFICATION ADMINISTRATION

This agency became part of USDA on July 1, 1939. It was created as an emergency agency in May 1935, with responsibility for a ten-year program of making loans for lines to take electricity to farmers able to pay for power but without access to it. It makes loans chiefly to farmers' cooperatives, but also to public power districts, private utilities, and other agencies for building and extending electric distribution systems in rural areas.

OFFICE OF FOREIGN AGRICULTURAL RELATIONS

This office has for more than 20 years been conducting basic research in the fields of foreign competition, foreign demand for farm products, and foreign agrarian policy. Its primary function is to collect, analyze, and disseminate information with respect to international trade and foreign production of agricultural commodities, and to study the factors influencing the foreign market demand.

The office also assists in developing programs related to economic cooperation among the American republics, the agricultural aspects of lend-lease activities, meeting the food needs of foreign countries after the war, and the general question of postwar planning for a rehabilitation of world production and trade in farm products.

FOREST SERVICE

This agency guards public forest lands against destruction, manages its own output of lumber, and assists private forest owners to get production required for wartime needs without permanent impairment of timber, soil, or water resources. Its activities are integrated with USDA's general program-planning by the Bureau of Agricultural Economics. (See also *Conservation.*)

* As of September 25, 1943, consolidated with FEA.

UNITED NATIONS CONFERENCE ON FOOD AND AGRICULTURE

This conference, called on invitation of the Government of the United States, met at Hot Springs, Virginia, May 18 to June 3, 1943, to consider "the goal of freedom from want in relation to food and agriculture." Forty-five nations were represented. The conference took under consideration both the immediate problem of procuring sufficient food for the war-ravaged nations of the world and the long-range problem of achieving an "economy of abundance" for the post-war world. It recommended formal declaration that the governments and authorities represented recognize their obligation to their own people and to one another to raise the levels of nutrition and the standard of living of their citizens, to improve the efficiency of agricultural production, and to cooperate with one another for the achievement of these ends. Recognizing that "the primary responsibility lies with each nation for seeing that its people have the food needed for health and life," and that "steps to this end are for national determination," it pointed out that each nation can reach this goal only if all work together. To attain these ends and to implement its specific recommendations the Conference proposed the creation of interim and permanent commissions.

The Conference recognized that freedom from want was attainable, but urged that the first task was to achieve freedom from hunger. To this end it proposed the planning of agricultural production and the adoption of specific measures to prevent violent fluctuations of prices resulting from shortages, the temporary concentration on cereals and other energy-producing foods, and special provisions for "vulnerable" groups such as children, pregnant women, workers, and others.

The Conference recognized that a great increase in food production would be necessary to achieve the ultimate goal of freedom from want, and discussed specific measures whereby this increase could be assured. It emphasized that freedom from want cannot be achieved unless freedom from fear is first secured, and unless there is a balanced and world-wide expansion of economic activity.

A section of the Conference, set up to consider improvement in means of distribution, agreed that any arrangements made should include representation of consumers as well as of producers. It concluded that consumers would not be in a position to buy needed food or producers assured of adequate returns without national and international action to raise the general level of employment, and that this in turn required a consideration of the character and extent of industrial development, the management of currencies, the direction of national and international investments, and foreign trade policies.

The interim commission set up by the Conference, in formulating the functions and duties of the permanent commission, was instructed to take into account the promotion of scientific, technological, social, and economic research, the conservation of land and water resources, the collection and dissemination of information, the submission of recommendations with regard to nutrition, standards of consumption, agricultural production, distribution and conservation, education and extension work in the field of food and agriculture, agricultural credit, the problems of agricultural population and of farm labor, agricultural commodity arrangements, cooperative movements, land tenure, and the relation of agriculture to world economy.

Addressing the delegates at the White House, President Roosevelt characterized the Conference as "epoch-making" because, "in reaching unanimity upon complex and difficult subjects you have demonstrated beyond question that the United Nations really are united—not only for the prosecution of the war but for the solution of the many and difficult problems of peace. . . . You have brought new hope for the world that, through the establishment of orderly international procedures for the solution of international problems, there will be attained freedom from want and freedom from fear."

* * *

DEPARTMENT OF COMMERCE

Created February 14, 1903 (*as Department of Commerce and Labor*) **—Secretary of Commerce, Jesse H. Jones**

The widely varied activities of this department include collection, analysis, and dissemination of statistics on population, agriculture, manufacturing, and commerce; promotion of foreign and domestic commerce; coastal and geodetic surveys; supervision of patents; promotion and development of air commerce; operation of the Weather Bureau; development of inland waterway transportation; and a number of other activities.

BUREAU OF THE CENSUS

This is the principal statistical agency of the federal government. It had its origin in the decennial "Enumeration," authorized in the Constitution, which specifies that these population figures be used as the basis for the apportionment of representatives in Congress.

The scope of the census has been gradually extended until it has come to be a comprehensive inventory of the population, resources, and economic activities of the nation. The 1940 decennial census included, in addition to the population census, a census of agriculture, housing, manufactures, business, mines and quarries, and irrigation and drainage.

The bureau's facilities and trained personnel are at present engaged in preparing statistics required for prosecution of the war.

NATIONAL INVENTORS COUNCIL

The National Inventors Council was created in August 1940, to receive, evaluate, and pass on to appropriate branches of the armed services all inventions, new products and processes submitted by the public as a contribution to the war effort. It works in very close collaboration with the Army and Navy. Existing Army regulations require that all inventions submitted by the general public through the War Department should be referred first to the Council.

Evaluation of inventions is accomplished through a technical staff and a system of technical committees. Up to the summer of 1943, the Council had received and evaluated more than 130,000 suggestions. (See also *Science*.)

CIVIL AERONAUTICS ADMINISTRATION

To carry out the mandate of Congress to encourage and develop civil aeronautics, CAA is charged with the task of operating and maintaining the 32,000 miles of lighted, radio-controlled lanes used by aircraft; the certifying of aircraft and equipment, pilots, mechanics, and parachute riggers;

the conducting of development work and service testing to improve the safety and efficiency of air travel; and many other duties—all designed to surround aeronautics with every safeguard and assistance that the federal government can give.

Since December 7, 1941, all CAA services have been concentrated on giving aid to the war, the groundwork having been laid by participation in the defense program up to that date. Thousands of graduates of the CAA pilot-training program have entered the armed services, and all future trainees will be Army or Navy reservists. The Federal Airways System has met wartime demands for strict traffic control and close coordination with air defense commands, while its facilities in Alaska and Hawaii are proving of great service to the military air forces.

COAST AND GEODETIC SURVEY

A mariner is dependent in large measure on adequate navigational information—a detailed knowledge of the nature and configuration of coasts; the varying water depths; character of sea bottoms; locations of reefs, shoals, and other dangers; the rise and fall of the tides; the directions and strength of currents; and the nature and amount of magnetic variation. All these data, secured primarily for charts and related nautical publications, are gathered for the United States by the Coast and Geodetic Survey, and are of prime importance in wartime.

BUREAU OF FOREIGN AND DOMESTIC COMMERCE

Organized in 1912, this bureau reviews broad trends and developments of an economic nature on the basis of its own research, and also makes studies which have specific and practical application to current business problems. Today its entire activities are directed toward research and analysis required by various war agencies. Most of its foreign-commerce staff and records have been placed at the disposal of the Foreign Economic Administration, while the domestic branch concentrates on problems of commerce and production within the United States.

PATENT OFFICE

Since the passage of the first Patent Act in 1790 it has been the function of the Patent Office to secure to inventors the right to use their inventions while at the same time it has protected and furthered the public interest. To this function has been added the duty of registering trademarks used on merchandise entering interstate and foreign commerce. The work of this office has grown steadily. Some 36,000 patents were granted prior to 1860; in the first quarter of this century the total reached almost one million, and in 1940 alone the total number was 48,850.

The Patent Office War Division was created by the merger of the Patent Office War Committee and the Patent Office Licensing Division, the purpose being to safeguard from disclosure inventions of value for use in the war.

NATIONAL BUREAU OF STANDARDS

The functions of this bureau are, briefly: the development, construction, custody, and maintenance of the reference and working standards used in science, engineering, industry, and commerce; research connected with standards; and the determination of physical constants and the properties of materials.

Since the United States entered the war the bureau's scientific and technical staffs have devoted a large part of their time to confidential problems connected with the prosecution of the war. (See also *Science.*)

WEATHER BUREAU

In normal times it is the function of the Weather Bureau to observe, record, and report weather conditions throughout the United States and its territories; to give daily weather forecasts and warnings of storms, cold waves, and other meteorological conditions; and to prepare climatological reports for the country.

The bureau's over-all services were enlarged for war purposes, but complete and detailed weather reports are restricted to the continental United States. They may not include predictions about barometric changes, wind corrections, visibility, and types of configuration.

RECONSTRUCTION FINANCE CORPORATION

Set up in 1932 as a limited emergency lending agency to cope with the difficult credit situation resulting from the depression, RFC has grown into a great financial institution rendering assistance in every field of American business. It is supervised by a five-member board of directors, operating through a principal office in Washington, and has loan agencies in 31 leading U. S. cities.

The RFC Act of 1932 restricted the corporation to making loans to aid agriculture, commerce, and industry, but numerous amendments have broadened the scope of its operations. It may lend to financial institutions and to railroads; purchase the capital stock of banks, trust companies, insurance companies, mortgage associations, and similar financial institutions; make loans to certain public agencies and business enterprises; lend as much as 10 million dollars to mining, milling, or smelting enterprises; lend up to 10 million dollars to public school authorities and other public institutions and enterprises. Its loans range from a few hundreds to millions of dollars.

From the beginning, RFC has been a self-supporting organization; after paying all operating expenses and interest on money borrowed, it has accumulated an operating reserve exceeding 250 million dollars.

On its own account RFC is empowered to issue notes, debentures, bonds, or other such obligations as are required to assist its financial program. Federal Reserve Banks act as RFC depositories, custodians, and fiscal agents.

A 1940 amendment to the RFC Act permitted the organization of subsidiary agencies, including the Rubber Reserve Company, to acquire and carry a reserve supply of rubber for use in the national defense; the Metals Reserve Company, to accumulate a supply of tin, manganese, and other strategic metals; the Defense Supplies Corporation, to acquire reserves of high-test gasoline for airplanes as well as other important non-metallic war materials; and the Defense Plant Corporation, to construct, equip, and capitalize industrial plants requisite to national defense. A number of these subsidiaries were transferred to the Office of Economic Warfare by executive order on July 15, 1943, and later to the Foreign Economic Administration.

RFC, with its several subsidiaries, has authorized the expenditure of more than 13 billion dollars in the war program for such items as aircraft, magnesium, and synthetic rubber plants, the expansion of the steel industry, the construction of munitions factories and shipyards, the purchase of strategic materials, the financing of pilot-training schools, and numerous other essential enterprises. (See also *Foreign Economic Administration.*)

* * *

DEPARTMENT OF LABOR*

Created March 4, 1913—Secretary of Labor, Frances Perkins

The Department of Labor is charged with fostering, promoting, and developing the welfare of the wage earners of the United States, improving their conditions, and advancing their opportunities for profitable employment. The Secretary has power under the law to act as mediator, and to appoint commissioners of conciliation in labor disputes whenever in the Secretary's judgment the interests of industrial peace may require such action.

The Secretary has authority to direct the collecting and collating of statistics on labor and related matters, and the gathering and publication of information concerning labor interests and labor controversies in the United States and other countries; and the direction of the work of investigating all matters pertaining to child welfare.

The war has greatly accelerated and expanded the department's normal activities. Some of its functions, as exercised by different agencies, follow:

U. S. CONCILIATION SERVICE

This service is charged with the duty of using its good offices, through the director or the commissioners of conciliation, to seek peaceful settlement in any trade dispute arising between employers and employees in industry. Authority for this service is found in section eight of the act creating the department.

BUREAU OF LABOR STATISTICS

This bureau is charged with the duty of acquiring and diffusing among the people of the United States useful information on subjects connected with labor in the most general and comprehensive sense of that word, and especially upon its relation to capital, the hours of labor, the earnings of laboring men and women, and the means of promoting their material prosperity and social, intellectual, and moral welfare.

It is especially charged with investigating the causes of and facts relating to controversies and disputes between employers and employees as they occur, and which may interfere with the welfare of the people of the several states.

It is also authorized to publish bulletins on the condition of labor in the United States and other countries, condensations of state and foreign labor reports, facts as to conditions of employment, etc.

CHILDREN'S BUREAU

Studies and reports are made by this bureau upon all matters pertaining to child welfare, particularly the questions of infant mortality, birth rate, orphanages, juvenile courts, desertion, dangerous occupations, accidents and diseases, employment, and legislation affecting children.

Under the Social Security Act the bureau is responsible for administration of those parts of the act providing for maternal and child-health services, services for crippled children, and child-welfare services. Under the Fair Labor Standards Act the bureau is authorized to administer the provisions of the act relating to oppressive child labor, make all investigations and inspections with respect to the employment of minors, and—subject to the direction and control of the Attorney General—to enjoin any unlawful exploitation of child labor.

WOMEN'S BUREAU

This bureau formulates standards and policies to promote the welfare of wage-earning women, improve their working conditions, increase their efficiency, and advance their opportunities for profitable employment. The bureau has authority to investigate and report to the department upon all matters pertaining to the welfare of women in industry.

DIVISION OF LABOR STANDARDS

This division is authorized to develop desirable labor standards in industrial practice, labor-law administration, and labor legislation; to make specific recommendations concerning methods and measures designed to improve the working conditions and the economic position of wage earners; in so doing, to make directly available to interested organizations and persons the existing resources of the Department of Labor and pertinent material obtainable from public or private sources.

WAGE AND HOUR AND PUBLIC CONTRACTS DIVISIONS

These divisions were consolidated under one administrator in 1942. The Wage and Hour Division enforces the wage and hour provisions of the Fair Labor Standards Act and sees that employers engaged in interstate commerce or producing goods for interstate commerce conform to the wage and hour standards. It is authorized to enjoin manufacturers who do not meet these standards from shipping goods in interstate or foreign commerce.

The Public Contracts Division administers the Walsh-Healey Act, which requires government supply contracts in excess of $10,000 to contain certain maximum-hour, minimum-wage, child-labor, safety, and health stipulations and charges the Secretary of Labor with the duty of promulgating these standards and supervising their enforcement.

* See also *National Labor Relations Board* (INDEPENDENT AGENCIES) and *National War Labor Board* (OEM), which are not under the Labor Department.

* * *

FEDERAL SECURITY AGENCY

Created April 25, 1939—Administrator, Paul V. McNutt

Although the administrator is not a Cabinet member, FSA is, in effect, a federal department, bringing together and coordinating the activities of a number of agencies engaged in social security, educational, and welfare activities. They are as follows:

OFFICE OF COMMUNITY WAR SERVICES

This office was formerly the Office of Defense Health and Welfare Services (under OEM) and was transferred to the Federal Security Agency by executive order on April 29, 1943.

Its responsibility is to act as a center for the coordination of health and welfare services for the nation as a whole during the war emergency. It collaborates with and utilizes as far as practicable, the facilities and services of existing agencies performing related functions. It works with and

through the state and local defense councils and other appropriate state and local agencies; and in this connection its policy is to cooperate with the Office of Civilian Defense in its relationships with state and local groups.

OFFICE OF EDUCATION

This office serves as a clearing house for educational information and counsel, and establishes advisory relationships with public and private colleges and universities, state departments of education, schools, libraries, and other organizations concerned with education. It is responsible for the administration of federal aid to land-grant colleges, and since 1933 also has been responsible for the administration of federal aid to vocational education of less than college grade and a federal program of vocational rehabilitation for disabled civilians.

Since December 7, 1941, the Office of Education has devoted itself almost wholly to educational problems of wartime. It has assisted colleges, universities, high schools, and other educational institutions to meet the specialized demand for technically trained men for both industry and the armed services. It has prepared pamphlets on school administration and the needs of the nation in wartime, as well as radio programs and motion-picture films specifically aimed at training for war industry and at informing the public about available courses.

PUBLIC HEALTH SERVICE

Functions of this service include control of maritime and interstate quarantine; cooperation with state and local health departments in matters of public health; research into diseases and their prevention; supervision of the manufacture of vaccines, serums, antitoxins; study of mental diseases and drug addiction; compilation and publication of mortality reports, and of state laws, court decisions, etc., relating to public health; and dissemination of pertinent literature. (See also *Public Health.*)

The *National Institute of Health*, in Washington, among other projects, is working to perfect typhus-fever vaccine and developing a program for the immunization against pneumonia of civilian workers in many heavy industries.

The *Industrial Hygiene Laboratory*, a specialized branch of the Institute, carries on investigations in industrial sanitation and hygiene, including research in diseases caused by dust, gases, vapors, fumes, and other industrial hazards; it makes studies in industrial morbidity and mortality, and sanitary and engineering surveys of industrial plants. It has cooperated with the War Department in surveying the occupational hazards of government war plants.

FOOD AND DRUG ADMINISTRATION

This is a regulatory organization charged with enforcement of five acts regulating interstate and foreign commerce in certain commodities essential to the public health and the economic welfare of the nation. The acts are the Food, Drug, and Cosmetic Act; the Milk Importation Act; the Filled Milk Act; the Caustic Poison Act; and the Tea Importation Act. The policy that guides FDA activities is designed to give consumers maximum protection with minimum disturbance to legitimate commerce.

SOCIAL SECURITY BOARD

SSB administers provisions of the Social Security Act relating to old-age assistance, aid to dependent children, aid to the blind, unemployment compensation, and old-age and survivors' insurance.

The federal old-age and survivors' insurance system provides the following types of monthly benefits payable by the federal government: primary insurance benefits to aged (65 or over) retired wage earners; wife's insurance benefits to the aged wives of individuals receiving primary insurance benefits and to the dependent children of deceased wage earners; widow's insurance benefits to the aged widows of wage earners; widow's current insurance benefits to widows who are caring for one or more children of a deceased wage earner; and parents' insurance benefits to the aged, dependent parents of deceased wage earners. In addition, lump-sum death payments are payable to specified classes of individuals.

The purpose of this program is to give protection to industrial and commercial wage earners and their families against loss of income due to the old age or premature death of the wage earner. This program is administered entirely by the federal government and should not be confused with old-age assistance or other social security programs in which the states participate.

The public assistance features of the Social Security Act provide for grants to the states for old-age assistance, aid to dependent children and to the blind, maternity benefits, vocational rehabilitation, and public health work.

The Social Security Act also provides for federal cooperation with states in maintaining systems of unemployment compensation designed to pay benefits to qualified workers when they become unemployed.

CIVILIAN CONSERVATION CORPS

CCC was established in 1933 to provide employment and vocational training for youthful citizens and a limited number of war veterans and Indians, and to perform useful public work in the field of conservation. The corps which enlisted at one time or another over 3 million members, built roads, fire trails, bridges, and service buildings especially in national parks and forests, and did a variety of conservation jobs.

Owing to the war, Congress decided to abolish the CCC and in 1942 approved an act providing for liquidation of the corps not later than June 30, 1943.

NATIONAL YOUTH ADMINISTRATION

The objectives of this agency have been to assist young Americans to get more education than otherwise would be possible for some of them by providing employment after school hours. Through work-experience centers the NYA also fitted its enrollees for jobs requiring specialized skills. The program was an adaptable one and included many plans all aimed at assistance to students who might have been forced to leave school prematurely without it.

Appropriations for NYA were drastically reduced for the fiscal year beginning July 1, 1942 and, in September of the same year, the whole agency was transferred to the War Manpower Commission. State and area offices were closed and 11 regional offices were established instead for the purpose of coordinating and directing operation of the *War Production Training Program.* This machine-shop training for war work was practically the only activity carried on during 1942-43. NYA will wind up all its affairs on December 31, 1943.

FEDERAL WORKS AGENCY

Created April 25, 1939—Administrator, Major General Philip B. Fleming

FWA is concerned with construction and public works. Two of the administrations are described below. Two other administrations, whose work was recently completed, are also outlined.

Establishment of new Army posts, naval stations, and war-industry plants have brought about expansion of population in and around many towns and cities. These concentrations produced urgent need for additional housing; sanitary, educational, health, and transportation facilities; and other public works and services. As provision of these facilities is in many instances beyond the financial ability of the localities, the federal government has undertaken to provide them. As of September 30, 1942, a total of 1,830 War Public Works projects had been approved by the President. Estimated cost: $301,047,735.

PUBLIC ROADS ADMINISTRATION

Normally, this agency administers the federal-aid funds and emergency appropriations for road construction, most of which is handled cooperatively with state highway departments. It also conducts research in highway design and supervises construction of roads in national parks and forests.

Since the beginning of the war, only projects which have a direct and immediate importance to the war have been undertaken—access roads to Army and Navy training and concentration areas, war industries, and raw-material sources, and a few improvements to the main highways where these were critically needed. The Public Roads Administration cooperated with the Corps of Engineers of the Army in constructing the Alaska Highway. The Public Roads Administration has also assisted with the construction of flight strips (emergency plane runways).

PUBLIC BUILDINGS ADMINISTRATION

This agency is responsible for administration of public building construction. Since the United States entered the war it has concentrated on necessary war buildings only. In the area of Washington, D. C., many temporary structures for wartime office workers have been constructed; and as agent for the National Housing Agency, the Public Buildings Administration is building a number of residence halls for women government workers in and near Washington.

PUBLIC WORKS ADMINISTRATION

Originally set up as a flexible agency for general construction, PWA passed out of existence on June 30, 1943, when its operations were completed and its function taken over by other more permanently designed agencies.

WORK PROJECTS ADMINISTRATION

(*formerly Works Progress Administration*)

WPA was originally established to operate a program of useful public works projects and to aid employable needy persons by providing them with work on such projects. At the beginning of the war its activities were aimed at: (1) reabsorption of workers into private employment; (2) employment of needy people in work directly aiding the war program where possible; and (3) continuation of projects which contributed to the essential activities of national life.

WPA projects bearing on the war included sewing projects devoted to rehabilitating worn Army clothing and equipage; operation of training classes to fit persons on work-relief to take their places in production lines; salvaging of abandoned streetcar rails for scrap; and building and repairing roads.

All these projects were brought to completion, and WPA came to an end June 30, 1943.

* * *

EXECUTIVE OFFICE OF THE PRESIDENT

Directly attached to the Office of the President, and not under any of the regular federal departments, are certain agencies designed to assist the Chief Executive with his duties. Of these, the Bureau of the Budget and the National Resources Planning Board have been established for some time. All the others, generally considered as adjuncts to the President's office, including the large group under the Office for Emergency Management, owe their existence to the current emergency. The agencies attached to the Executive Office are as follows:

BUREAU OF THE BUDGET
NATIONAL RESOURCES PLANNING BOARD
OFFICE FOR EMERGENCY MANAGEMENT

Reporting directly to the President, but outside the officially designated Executive Office, are such emergency agencies as:

NATIONAL HOUSING AGENCY
OFFICE OF PRICE ADMINISTRATION
OFFICE OF CENSORSHIP
PETROLEUM ADMINISTRATION FOR WAR

BUREAU OF THE BUDGET

Director, Harold D. Smith

It is the duty of the President to present the Congress with an annual budget, together with his estimates of receipts, expenditures, and other budgetary data. The Bureau of the Budget prepares this budget under the direction of the President, and with the assistance of budget officers attached to each federal department or establishment.

NATIONAL RESOURCES PLANNING BOARD

Chairman, Frederic A. Delano

NRPB was established to collect data on national resources and to prepare plans for the use and fullest development of such resources. Congress did not reappropriate funds for the board at the end of the 1942-43 fiscal year, so it is now in process of liquidation.

Before its activities were terminated, NRPB made reports to the President and Congress and advised the President on trends in business activity and employment. It collected advance information on construction plans of the federal government and of states, municipalities, and other public and private agencies; studied all proposed federal projects involving the acquisition of land; and acted as a clearing house for federal, state, and municipal planning agencies. It prepared and submitted a report on "Security, Work, and Relief Policies," and a later report on the demobilization and readjustment of the war machine, both military and civilian.

OFFICE FOR EMERGENCY MANAGEMENT

Liaison Officer, James F. Byrnes

OEM is a service and liaison agency set up to perform certain administrative functions for the agencies which belong to it and to keep the President in close contact with the

work of each. The liaison officer (OEM has no director or chief) does not supervise the work of OEM agencies, but merely keeps in close touch with them and arranges for services needed by them.

OEM consists of the following agencies:

BOARD OF WAR COMMUNICATIONS
COMMITTEE ON FAIR EMPLOYMENT PRACTICE
NATIONAL WAR LABOR BOARD
OFFICE OF ALIEN PROPERTY CUSTODIAN
OFFICE OF CIVILIAN DEFENSE
OFFICE OF ECONOMIC STABILIZATION
OFFICE OF THE COORDINATOR OF INTER-AMERICAN AFFAIRS
OFFICE OF DEFENSE TRANSPORTATION
OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT
OFFICE OF WAR INFORMATION
WAR MANPOWER COMMISSION
WAR PRODUCTION BOARD
WAR RELOCATION AUTHORITY
WAR SHIPPING ADMINISTRATION
OFFICE OF WAR MOBILIZATION
FOREIGN ECONOMIC ADMINISTRATION

BOARD OF WAR COMMUNICATIONS (under OEM)

Chairman, James L. Fly

BWC is basically a planning agency without operating or procurement functions. It is made up of a number of committees composed of government officials and officials of interested commercial companies, and its purpose is to coordinate the relationship of all branches of communication to the war effort. In this task it cooperates closely with the Federal Communications Commission (see under *Independent Agencies*, this section), and its chairman is also chairman of FCC.

This board has been given no power to censor radio or other communications, but the scope of its coordinating and planning includes commercial radiotelephone and radiotelegraph, telephone, telegraph and cable facilities, and radio broadcasting.

COMMITTEE ON FAIR EMPLOYMENT PRACTICE (under OEM)

Chairman, Malcolm Ross

The purpose of the committee is to promote the fullest utilization of all available manpower and to eliminate discriminatory employment practices.

NATIONAL WAR LABOR BOARD (under OEM)

Chairman, William H. Davis

In December 1941, less than a week after America entered the war, the President called a national conference of representatives of labor and management. At this conference it was decided:

1. That there shall be no strikes or lockouts for the duration of the war.
2. That all labor disputes shall be settled by peaceful means.
3. That a war labor board should be set up to settle disputes.

Following this conference, NWLB was established by executive order January 12, 1942, as a mechanism for the settlement of labor disputes and for determination of wages, hours, and other working conditions, in a period when maximum uninterrupted production is essential to the winning of the war. (Wage and hour stabilization has now been taken over by the Office of Economic Stabilization.)

NWLB is composed of 12 members, appointed by the President. Four of these represent the public, four represent employees and are chosen from the leaders of America's 14 million trade unionists, and four represent employers. The board chairman and vice chairman are both appointed from among the public members.

Generally speaking, the following steps are followed before cases become eligible for board action:

1. The parties employ collective bargaining.
2. If the case is not settled in this manner, the commissioners of conciliation of the Department of Labor are called upon to attempt conciliation.
3. If the dispute is not promptly settled by conciliation, the Secretary of Labor certifies the case to NWLB. Or, the board may, after consultation with the Secretary of Labor, take jurisdiction of the dispute on its own motion.

The executive order of January 12 gave the board jurisdiction over disputes affecting "work which contributes to the effective prosecution of the war." That jurisdiction was extended by the President on October 3, 1942, to include "all industries and all employees."

Evidence of the faith which industry has shown in NWLB policy is the fact that, of a total of nearly 400 dispute cases handled by the board in 1942, there were only four cases of non-compliance. These were finally referred to the President, who ordered the government to take over and run the plants.

An indication of labor's compliance with the spirit of the pledge given at the labor-management conference in 1941, is the fact that the number of man-days lost through strikes in war industries in 1942 was only 6/100 of 1 percent of the number of man-days worked.

NWLB utilizes a variety of procedures in the settlement of cases. A case may be mediated by a mediator sent out by the board, or before a tripartite panel of the board, or it may be arbitrated. As a practical matter, most of the cases have been referred to tripartite panels which have held their sessions in Washington. Panel hearings are conducted in the presence only of the panel and the representatives of the parties themselves. During the course of the hearing the panel attempts mediation, and often succeeds. From January 1942 through April 1943 the Board received 2,943 dispute cases involving about 5,604,000 workers, and closed 1,153 cases involving approximately 3,475,000 workers. Voluntary wage and salary adjustment cases acted on by the Regional Boards from October 3, 1942, when the NWLB was given jurisdiction over such cases, through April 30, 1943, totaled 23,779.

NWLB is empowered to act as final arbiter of wartime labor disputes and to control adjustments of wages and of salaries under $5,000 a year, except for salaries of supervisory and professional employees. Other salary adjustments are controlled by the Commissioner of Internal Revenue.

If a labor dispute is not settled by collective bargaining or by the intervention of the United States Conciliation Service, the Secretary of Labor certifies the case to the Board, or the Board may take jurisdiction on its own motion after consultation with the Secretary. Except in cases of national significance, the Board refers cases to the appropriate one of its twelve Regional Boards. Boards consist of four public, four employee, and four employer members. In the regions, a single referee or a tripartite panel will hear the case and make recommendations to the Regional Board. Voluntary wage adjustments are also referred to the proper Regional Board, whose Wage Stabilization Director is authorized to pass on most cases after they are analyzed by the staff. The National Board retains jurisdiction of policy-making cases, and may review regional decisions.

NWLB is authorized to approve increases over the rates prevailing on September 15, 1942, only when such increases are necessary to correct maladjustments or gross inequities, to eliminate substandards of living, or to aid in effective prosecution of the war. (See also *Labor.*)

OFFICE OF ALIEN PROPERTY CUSTODIAN (under OEM)

Custodian, Leo T. Crowley

OAPC was established to direct, manage, supervise, control, or vest any business enterprise or interest in a business enterprise which is held by an enemy country or national thereof; also any other physical property within the United States controlled by an enemy, ships of designated foreign countries, patents, patent applications, copyrights, and trademarks, and all property being administered under judicial supervision in which designated foreign nationals or countries have an interest.

Physical properties, ships, and estates that fall within OAPC's province are estimated to be worth more than 3 billion dollars. In addition, the office is taking over about 60,000 enemy-owned patents, patent applications, and copyrights.

More than 60 percent of the industrial properties seized by OAPC and all the mechanical inventories are working full time at U. S. war production. Seizures of properties are going ahead at the rate of about 15 or 20 a week. Determination of what will happen to these seized properties after the war will have to wait until the fate of American properties in enemy countries can be known.

OFFICE OF CIVILIAN DEFENSE (under OEM)

Acting Director, John B. Martin

OCD was established May 20, 1941, to assure effective coordination of federal relations with state and local governments in providing for adequate protection of the civilian population in emergencies, and to bring as many citizens as possible into constructive participation in the war program. James H. Landis resigned as Director on September 10, 1943. (For further discussion, see *Civilian Defense.*)

OFFICE OF ECONOMIC STABILIZATION (under OEM)

Director, Fred M. Vinson

In line with the President's message of April 27, Congress on October 2, 1942, passed an act to provide for the stabilization of the national economy in wartime. The next day the President issued an executive order directing the establishment of the Office of Economic Stabilization.

Director Fred Vinson works closely with the Economic Stabilization Board, an advisory body consisting of the heads of all the government agencies directly concerned with inflation and six additional public representatives from outside the government. The purpose of OES is to maintain a stable civilian economy during the war, avoiding severe inflation and other serious economic difficulties directly or indirectly resulting from the war.

OFFICE OF THE COORDINATOR OF INTER-AMERICAN AFFAIRS (under OEM)

Coordinator, Nelson A. Rockefeller

It is the function of this office to build up a strong mutual respect and understanding among all the nations of the Americas in order that they may be prepared to meet jointly emergency wartime demands and to plan jointly for a sound postwar structure. The work is broadly divided between two fields of activity: economic and psychological. Specifically, the tasks of the office are to:

(a) Serve as the center for the coordination of the cultural and commercial relations of the nation affecting hemisphere defense.

(b) Formulate programs in such fields as the arts, sciences, education, radio, press, and motion pictures which will strengthen the bonds among the nations of the Western Hemisphere.

(c) Formulate economic and commercial programs which, by the effective use of governmental and private facilities, will further the commercial well-being of the Western Hemisphere.

(d) Assist the Secretaries of War and Navy to assist the governments of American republics to increase their military and naval strengths.

(e) Review existing laws and suggest new legislation for the improvement of hemispheric relations and solidarity.

The office has no jurisdiction over the relations between the United States and Canada which are in the province of the OWI.

OFFICE OF DEFENSE TRANSPORTATION (under OEM)

Director, Joseph B. Eastman

On December 18, 1941, eleven days after America entered the war, President Roosevelt issued an executive order establishing ODT, to: coordinate the transportation policies and activities of the several federal agencies and private transportation groups; compile and analyze estimates of the requirements to be imposed upon existing transport facilities by the needs of the war; determine the adequacy of such facilities to accommodate the increased traffic volume; develop measures designed to secure maximum use of existing domestic transportation facilities and stimulate the provision of necessary additional transport facilities; coordinate and direct domestic traffic movement; coordinate domestic traffic movements with ocean shipping; ascertain present and anticipated storage and warehousing requirements; negotiate rates and advise appropriate governmental agencies with respect to the necessity for rate adjustments; advise upon proposed or existing legislation affecting domestic transportation; and recommend such additional legislation as may be necessary or desirable. (See also *Transportation.*)

OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT (under OEM)

Director, Vannevar Bush

OSRD has the immediate and practical purpose of developing new and improved weapons of war for the armed services and of minimizing physical suffering and loss of fighting manpower through research in military medicine. To accomplish this purpose, it has mobilized a substantial portion of the scientific personnel, resources, and equipment of the entire nation. No super agency has been created; instead, OSRD, with a relatively small staff, has placed research problems with several hundred established academic institutions and industrial and research organizations, where the work is done under contract. (See also *Science.*)

OFFICE OF WAR INFORMATION (under OEM)

Director, Elmer Davis

On June 13, 1942, the information functions of the government—foreign and domestic—were consolidated into the Office of War Information. The Overseas Branch is under the direction of Robert Sherwood; the Domestic Branch under Palmer Hoyt.

In the order establishing OWI, the director was authorized to:

(a) Formulate and carry out, through the use of press, radio, motion-picture, and other facilities, information programs designed to facilitate the development of an informed and intelligent understanding, at home and abroad, of the status and progress of the war, and of the war policies, activities, and aims of the government.

(b) Coordinate the war informational activities of all

federal departments and agencies for the purpose of assuring an accurate and consistent flow of war information to the public and the world at large.

(c) Obtain, study, and analyze information concerning the war and advise the agencies concerned with the dissemination of such information as to the most appropriate and effective means of keeping the public adequately and accurately informed.

(d) Review, clear, and approve all proposed radio and motion-picture programs sponsored by federal departments and agencies; and serve as the central point of clearance and contact for the radio-broadcasting and motion-picture industries, respectively, in their relationships with federal departments and agencies concerning such government programs.

(e) Maintain liaison with the information agencies of the United Nations for the purpose of relating the government's informational programs and facilities to those of such nations.

(f) Perform such other functions and duties relating to war information as the President may from time to time determine. The director was also given authority, subject to policies laid down by the President, to issue directives to all federal departments and agencies with respect to their informational services. He has authority to eliminate all overlapping and duplication, and to discontinue in any department any informational activity which is not necessary or useful to the war.

WAR MANPOWER COMMISSION (under OEM)
Chairman, Paul V. McNutt

There are five closely cooperating divisions in the War Manpower Commission, all aiming at best utilization of available manpower in the armed forces, in industry, and on the farm. WMC is also expanding the total labor force of the nation through training programs, and its local offices are solving problems in their areas through conferences and agreements among war-plant production men, Selective Service officials, and other interested persons.

The five divisions of WMC are:

Bureau of Selective Service, which operates the local boards responsible for induction of men into the armed services.

Bureau of Training, responsible for professional and technical training, vocational training, training-within-industry, and apprenticeship training programs.

Bureau of Placement, responsible for industrial and agricultural employment, placement of professional and scientific manpower, and employment in government services.

Bureau of Manpower Utilization, concerned with increasing the effectiveness of labor in industry.

Bureau of Program Requirements, responsible for research, compilation of data, and the operation of a technical consulting service.

(See also *Manpower*.)

WAR PRODUCTION BOARD (under OEM)
Chairman, Donald M. Nelson

WPB was established January 16, 1942, to exercise general direction over the war procurement and production program. It is the duty of the board to determine the policies, plans, procedures, and methods of the several federal departments, establishments, and agencies in respect to war procurement and production, including purchasing, contracting, specifications, and construction, conversion, requisitioning, plant expansion, and the financing thereof.

(For a full account of WPB work, see *Production*.)

WAR RELOCATION AUTHORITY (under OEM)
Director, Dillon S. Myer

This agency was estabished by executive order of the President on March 18, 1942, as a direct result of the military decision—made some three weeks earlier—to remove all persons of Japanese ancestry from designated military areas of the Far Western states. With the Army handling details of the actual evacuation, WRA was set up as a civilian agency to provide for relocation or reestablishment of the evacuated people.

The evacuees—110,000 of them—were moved from their homes to temporary assembly centers established by the Army within the military zone. Then, from these centers, they were transferred in groups to the relocation communities situated farther inland.

Within the relocation communities, ranging in population capacity from 8,000 to 20,000, the evacuees are given a chance to make their homes and earn a living throughout the wartime period—although certain qualified evacuees have been released to take jobs outside the centers and others will be released after investigation. Food, shelter, medical care, and education are provided for all resident families. Hospitals, ranging in size from 150 to 250 beds, have been established. Education through the high-school level is provided for all evacuee children at the centers.

Evacuees are given every opportunity and encouragement to raise their community living above this subsistence level. They are permitted to conduct religious services of their choice, to establish their own community governments, and to organize their own recreational programs. One of WRA's basic aims is to make social life in the centers as healthy and well-rounded as possible.

WAR SHIPPING ADMINISTRATION (under OEM)
Administrator, Rear Admiral Emory S. Land

This agency controls the operation and purchase of all ocean vessels under the flag or control of the United States except naval vessels and coastwise shipping (which is under the Office of Defense Transportation). The administrator collaborates with existing military, naval, and civil departments, and with agencies of the government performing functions connected with wartime overseas transportation, to secure the most effective utilization of shipping in the prosecution of the war.

(See also *Production; Transportation*.)

OFFICE OF WAR MOBILIZATION (under OEM)
Director, James F. Byrnes

This office was created by executive order of the President, May 27, 1943, "to unify more clearly the work of the war agencies concerned with the production, procurement, transportation, and distribution of military and civilian supplies, materials, and products."

The Director is assisted by a war mobilization committee which consists of himself as chairman, the Secretaries of War and Navy, the chairmen of the Munitions Assignments Board and of the War Production Board, and the Director of Economic Stabilization.

The function of the Office of War Mobilization is: (1) to develop a unified program for the maximum use of the nation's resources and the effective use of civilian manpower, and for the stabilization of civilian economy, and (2) to unify the activities of federal agencies engaged in the production, procurement, distribution, and transportation of military and civilian supplies, and to resolve controversies among them.

FOREIGN ECONOMIC ADMINISTRATION (under OEM)

Administrator, Leo T. Crowley

The Foreign Economic Administration, created by the President's executive order of September 25, 1943, consolidates responsibility for U. S. foreign economic operations in one governmental division. Several agencies were transferred to the new administration and the administrator was given the power to establish from them a new organizational set-up which would amalgamate their functions.

The executive order which set up FEA explicitly states that the powers and functions of the new administration shall be exercised in conformity with U. S. foreign policy as defined by the State Department. On October 26, the State Department announced plans to appoint special advisers to the Under Secretary of State having as their duty the close liaison of FEA with the department so that FEA would be kept informed of policies affecting its programs.

The agencies combined in the new administration are:

Office of Economic Warfare

This was a relatively new agency created by executive order on July 15, 1943. It was responsible for carrying on economic warfare under the jurisdiction of the director of the Office of War Mobilization who was given authority to "arrange for the unification and coordination of the activities of the federal government relating to foreign supply, foreign procurement, and other foreign economic affairs in conformity with the foreign policy of the U. S. as defined by the Secretary of State."

It included the export, import, and economic analysis work of the former Board of Economic Warfare which was concerned with determining the essential minimum requirements of the United Nations and friendly neutrals and arranging for exports thereof; bringing in essential raw materials from foreign countries and carrying on preclusive buying operations to prevent vital materials from falling into the hands of the enemy; and providing current analyses of the enemy's economic position.

The OEW also took over the following subsidiaries of the Reconstruction Finance Corporation and the Department of Commerce: the United States Commercial Corporation, the Rubber Development Corporation, the Petroleum Reserve Corporation, the Export-Import Bank of Washington, and others which were engaged in financing foreign purchases and imports. (See also *Department of Commerce.*)

Office of Foreign Relief and Rehabilitation Operations

This office was responsible for distribution of food in such nations of the world as are determined to be in need of it, following liberation of such nations from enemy domination. It was established November 21, 1942, at which time Herbert H. Lehman was appointed Director. When OFRRO was taken over by FEA, Lehman became Special Assistant to the President. On November 9, 1943, he was elected Director General of UNRRA (United Nations Relief and Rehabilitation Administration).

Office of Lend-Lease Administration

The duties of this office are fully described under *Lend-Lease.*

On October 6, FEA was expanded by another executive order to include the functions of the War Food Administration and the Commodity Credit Corporation with respect to the procurement of food, food machinery, and other food facilities in foreign countries. (See also *War Food Administration* and *Agriculture.*)

NATIONAL HOUSING AGENCY

Administrator, John B. Blandford, Jr.

NHA, created by the President on February 24, 1942, is a central agency for all housing activity of the federal government except that specifically concerned with farm improvement and rural resettlement programs and construction on Army and Navy reservations.

The *Federal Public Housing Authority,* largest of the three divisions of the NHA, includes slum clearance and low-rental rehousing financial assistance. It assumes war housing activities carried on temporarily by the Federal Works Agency, U. S. Housing Authority, and Public Buildings Administration. For the duration of the war, activities of FPHA are directed primarily to housing of war workers and the integration of war housing construction with planning of permanent housing. (See also *Housing.*)

The *Federal Housing Administration,* second of the three bureaus in the NHA, stimulates the remodeling of homes and the construction of new homes by private initiative. It modernized the form of home mortgage financing and between 1934 and the U. S.'s entry into the war enabled 750,000 families to build or purchase homes on FHA-insured long-term loans. (See also *Housing.*)

The *Federal Home Loan Bank Administration* has refinanced more than a million distressed mortgages and rewritten more than 3 billion dollars of the nation's mortgage loans on a more workable basis, thereby stabilizing the entire home mortgage market.

OFFICE OF PRICE ADMINISTRATION

Administrator, Chester Bowles

OPA, established January 30, 1942, has three basic duties:

First, to prevent inflationary increases in prices and rents throughout the nation.

Second, to ration certain commodities for the civilian population.

Third, to protect consumer interests and generally maintain the civilian standard of living at the highest level consistent with the requirements of war.

At the base of all OPA operations are the local War Price and Rationing Boards. These boards, numbering roughly 5,600, are made up of citizens chosen for their intimate knowledge of their communities. Paid clerical assistance is provided by OPA out of federal funds to aid the boards, but the boards themselves serve without pay.

The local boards report usually to a state OPA office, located at the state capital or metropolis.

For purposes of general supervision, the various state offices have been grouped under eight regional offices. A ninth, located in Washington, supervises the operations in the territories and possessions of the United States.

These regional offices are the immediate representatives of the national office. They are responsible for the vast number of problems which must be settled authoritatively in the field, and are headed by administrators who are in control of all OPA operations within the region.

For administrative convenience the rent-control program is conducted by defense-rental areas, whose directors are responsible directly to regional rent executives and to the deputy administrator in charge of rent control.

OFFICE OF CENSORSHIP

Director, Byron Price

The Office of Censorship was established on December 19, 1941, by executive order of President Roosevelt, who authorized the Director of Censorship to "cause to be censored, in his absolute discretion, communications by mail, cable, radio, or other means of transmission passing between the United States and any foreign country . . . in accordance with such rules and regulations as the President shall from time to time prescribe."

The biggest physical job is the censorship of mails entering and leaving the United States. This requires about

10,000 employees, stationed in New York, Miami, New Orleans, San Antonio, El Paso, Laredo, Los Angeles, San Francisco, Chicago, and Seattle. In addition, there are postal stations in Honolulu, Balboa (Canal Zone), San Juan (Puerto Rico), and Cristobal (Canal Zone).

In these stations specially trained men and women examine outgoing letters and printed matter in order to excise any material which would be of value to the enemy. Among the types of information which they delete are movements of troops and ships, details of war production, descriptions of fortifications, and air-raid preparations, weather information, and any other data which would reveal military or economic plans. The press and radio maintain a system of voluntary censorship.

Codes of wartime practices for press and radio were prepared after consultation with government officials and representatives of the publishing and broadcasting industries. These set forth types of information which should not be printed unless given out by appropriate government authorities.

The specific information which newspapers and other publications are asked not to carry except when made available specifically by appropriate authority includes troop movements, ship movements and sinkings, attacks by air on the United States, airplanes' characteristics and activities, fortifications, production, weather, maps and photographs of any of the above, and movements of the President or other high military or diplomatic officials.

The radio code is similar although it necessarily must be more restrictive in a few instances. For example, weather forecasts about visibility, wind corrections, and barometric changes generally cannot be given over the air because they would enable the enemy to make plans for air raids or submarine attacks. A careful check is made of domestic foreign-language broadcasts.

PETROLEUM ADMINISTRATION FOR WAR

Petroleum Administrator, Harold L. Ickes

This war agency (formerly the Office of the Petroleum Coordinator for War) is charged with the responsibility of making available the steady flow of petroleum products necessary for the conduct of the war and also for the civilian needs of the United States and its Allies. Through the cooperation of the industry, the office organizes production, stimulates exploration, increases refining capacity, reshapes transportation facilities, and directs the marketing and distribution of petroleum products in order that high-octane aviation gasoline and other supplies for the fighting forces may be provided in sufficient volume and at the time and destinations best calculated to serve the purposes of the United Nations.

* * *

INDEPENDENT AGENCIES

These executive agencies are not attached to any of the federal departments, nor are the individual offices attached to one another.

Because of the special nature of the work they do, it has been found expedient for them to operate independently. Lack of space prevents inclusion of all these agencies; for those not included, refer to the U. S. Government Manual. Those here treated are:

FEDERAL COMMUNICATIONS COMMISSION
FEDERAL DEPOSIT INSURANCE CORPORATION
FEDERAL RESERVE SYSTEM
FEDERAL POWER COMMISSION
FEDERAL TRADE COMMISSION
U. S. TARIFF COMMISSION
NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
NATIONAL LABOR RELATIONS BOARD
SECURITIES AND EXCHANGE COMMISSION
TENNESSEE VALLEY AUTHORITY
U. S. CIVIL SERVICE COMMISSION
U. S. MARITIME COMMISSION

FEDERAL COMMUNICATIONS COMMISSION

Chairman, James L. Fly

FCC, which has seven commissioners, was established to regulate interstate and foreign communication by wire and radio. By making available so far as possible full world-wide wire and radio services, FCC contributes to the national defense. One of its peacetime objectives is the promotion of safety of life and property through better use of wire and radio communication.

The commission performs a number of important wartime functions: it intercepts information of use to the armed forces; locates the source of signals from unlicensed radio stations, lost ships or planes, etc.; and records, translates, and reports on foreign broadcast programs of interest to the U. S. Government. (See also *Office for Emergency Management: Board of War Communications.*)

FEDERAL DEPOSIT INSURANCE CORPORATION

Chairman, Leo T. Crowley

FDIC operates a system of bank-deposit insurance for the protection of bank accounts. Of the 14,307 banks in the United States, 13,347 are covered by the insurance, which protects all accounts up to $5,000. (For further information see *Finance and Trade.*)

FEDERAL RESERVE SYSTEM

Chairman, Board of Governors, Marriner S. Eccles

This is the national banking agency which operates check-clearance facilities, maintains reserve funds for member banks, and otherwise stabilizes the entire banking system of the United States. (For further discussion see *Finance and Trade.*)

FEDERAL POWER COMMISSION

Chairman, Leland Olds

FPC regulates power and gas companies operating in interstate commerce through a machinery of licensing the construction of new hydroelectric, steam-generating, and other plants, and new distribution facilities. FPC's purpose is to promote the development of power resources in the best interests of the nation. Data on power needs in various regions of the United States are collected and interpreted, and production-cost records are assembled and analyzed. The federal power-producing agencies—Tennessee Valley Authority, Bonneville Power Administration, etc.—report to FPC just as the private power companies do.

The commission has concentrated on war power needs since U. S. entry into the war, and on the problems involved in making power available to war plants located far from adequate power sources.

FEDERAL TRADE COMMISSION

Chairman, Garland S. Ferguson

FTC, created in 1914, is one of the government's agencies for prevention of unfair practices in business and industry.

Duties of the commission fall into two categories: (1) legal activities in the enforcement of the laws it administers, and (2) general investigations of economic conditions in domestic industry and interstate and foreign commerce. It can take the initiative of legal action against any type of unlawful practice it can discover and after proper investigation can issue "cease and desist" orders reviewable and enforceable by the circuit courts of appeals and the U. S. Supreme Court. When the offense is less flagrant, FTC may allow offenders to sign agreements to discontinue unfair practices.

In the present national emergency FTC is conducting urgent wartime investigations for the War Production Board, the Office of Price Administration, the Office of Censorship, and other government agencies. These inquiries relate to priorities, price ceilings, purchasing and inventory practices, production cost-accounting methods of industries, etc. For the Director of Censorship it analyzes press and radio advertising for references to such matters as the war, public health and morale, the price and rationing program, and conservation of critical materials.

U. S. TARIFF COMMISSION

Chairman, Oscar B. Ryder

The U. S. Tariff Commission is an independent fact-finding agency created by Congress in 1916 primarily for the purpose of supplying Congress with information on trade, industries, and commodities in connection with tariff revisions and other matters related to international trade.

Because of its long experience and the large body of accumulated information in its files the Tariff Commission has been called upon to furnish considerable aid to the various national defense and war agencies, giving them technical data concerning commodities, their production, sources of raw materials, imports, etc., and has made special studies of strategic, critical, and essential materials. At the present time the commission's work is concerned largely with problems related to the war in which it cooperates closely with the Foreign Economic Administration, the War Production Board, and other agencies.

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

Chairman, Jerome C. Hunsaker

NACA is a research agency of the federal government. Its purposes are:

(a) To coordinate the research needs of aviation, civil and military.

(b) To prevent duplication in the field of aeronautical research.

(c) To conduct, under unified NACA control, scientific aeronautical research, including: special investigations of problems submitted by the Army and Navy for immediate improvement in performance of military and naval aircraft; and fundamental research instituted by the committee to improve aircraft, military and civilian.

(d) To advise the War and Navy Departments, the Civil Aeronautics Authority, and the aviation industry as to the availability of the latest research information.

(e) To consider the merits of aeronautical inventions submitted by the public.

NATIONAL LABOR RELATIONS BOARD

Chairman, Harry A. Millis

NLRB enforces the National Labor Relations Act of 1935, designed to eliminate some of the underlying causes of industrial unrest.

The act provides for protection of the right of employees in industries engaged in interstate commerce to collective bargaining. To secure them this right, certain unfair labor practices are banned: employer interference with the right of employees to form and join unions of their own choosing; employer domination of labor organizations; discrimination against workers because of union activities; and employer refusal to bargain with unions representing a majority of the workers.

The work of NLRB actually covers two main fields: unfair labor practices against unions and their membership in general; and determination by elections in industrial establishments as to which organization (if any) shall represent the workers. The second phase of the work has become increasingly important: of 13,727 elections conducted by the board since its inception (in which almost 4 million ballots were cast) 3,563 took place between July 1942 and June 1943.

At the present time, more than 14 million wage and salaried workers are working under conditions arrived at through collective bargaining.

The orders issued by NLRB are not self-enforcing, nor do they prescribe penalties. Moreover, they may be appealed to the federal courts. However, most disputes are settled informally. (See also *Labor.*)

SECURITIES AND EXCHANGE COMMISSION

Chairman, Ganson Purcell

SEC, created in 1934, administers the Securities Act of 1933, which—to enable prospective investors to obtain complete and accurate information, and to protect the public against fraud and misrepresentation—requires every issuer of securities offered for sale in interstate commerce to file with the commission a registration statement setting forth in complete and honest detail the purposes and financial background of all new issues. SEC may suspend or refuse registration if the information furnished is incomplete or misleading.

It also administers the Securities Exchange Act of 1934, which gives it jurisdiction over national securities exchanges (of which there are 20) and charges it with their supervision to prevent unfair practices and manipulations of securities.

Except for securities subject to control by the Public Utilities Holding Act, SEC compels the disclosure of full information on the financial status of corporations, and the investor may use this information as a basis in formulating his own opinions. He is not, however, guaranteed against loss.

TENNESSEE VALLEY AUTHORITY

Chairman, Board of Directors, David E. Lilienthal

Created in 1933, TVA is a federal corporation which administers the nation's first large-scale regional development and conservation plan transcending state lines. TVA operates in the 41,000 square miles of watershed drained by the Tennessee River, in Tennessee, Kentucky, Virginia, Alabama, Georgia, North Carolina, and Mississippi. Its program is an integrated one including flood control, navigation improvement, fertilizer and chemical production, and power. Eighteen big dams on the Tennessee and tributary streams serve to maintain a channel for river navigation, hold back flood waters, and produce power. (See *Conservation; Power.*)

The bringing of electric power into isolated rural areas has improved the condition of Tennessee Valley farms, while employment opportunities, revived industry, and technical assistance offered by TVA have helped the people of the area to gain economic security and better living.

U. S. CIVIL SERVICE COMMISSION

President, Harry B. Mitchell

The principal duty of the commission is to give competitive examinations to test the fitness of applicants for government service, and to certify candidates with the highest grades for appointment, subject to state quotas based on

population. Examinations, which are held in every state and territory, are given for more than 2,000 types of positions. The commission administers the Classification Act of 1923, as amended, and laws prohibiting certain types of political action by government employees.

Through the deduction of a small percentage from the salaries of civil service employees the commission provides them with retirement on annuities when they reach a certain age, or in case of total disability. It has a specialized library for research and reference and cooperates with other government agencies, universities, industries, and research foundations in order to improve personnel administration.

U. S. MARITIME COMMISSION

Chairman, Rear Admiral Emory S. Land

The U. S. Maritime Commission was created in 1936 to build up the American merchant marine and promote foreign commerce through transport of goods and passengers on American vessels. An executive order dated February 7, 1942, transferred to WSA the functions, duties, and powers of the Maritime Commission with respect to the operation, purchase, charter, insurance, repair, maintenance, and requisition of vessels, as well as part of the personnel and records, for the most effective utilization of cargo shipping tonnage for the duration of the war.

The Maritime Commission and WSA function in close collaboration, and administrative heads who serve for both agencies form an interlocking directorate.

The duties of the commission include the investigation and determination of the ocean services and routes, and the determination of what merchant-marine additions and replacements are required for an adequate and well-balanced merchant fleet.

Under emergency and wartime legislation the commission is carrying out a program for the construction of a large number of cargo ships known as the Victory Fleet and for the construction of vessels with lend-lease funds. It is also engaged in establishing or expanding facilities for the construction of ships and the production of materials for them. These construction activities are planned to produce about 2,400 ships totaling approximately 27,000,000 tons in 1942 and 1943, and the vessels—with the exception of those acquired by the military branches of the government and by Allied governments under lend-lease—will be operated under WSA jurisdiction.

All ships are planned in consultation with the Navy, and their construction is based on possible conversion to national defense needs. The commission also regulates rates, insures vessels and their cargoes, and in peacetime trains seamen and promotes the greater use of American ships.

* * *

JOINT EMERGENCY WAR AGENCIES

The United States and other countries have formed a number of joint agencies to coordinate the war efforts of the United Nations. Among these are the following:

JOINT WAR PRODUCTION COMMITTEE—UNITED STATES AND CANADA

This committee was set up in November 1941 to coordinate the capacities of the two countries for the production of defense materials. The production and resources of both countries are integrated and directed toward a common program of requirements for the total war effort, scarce raw materials and goods required by one country from another being allocated to effect the maximum output of the most necessary articles in the shortest period of time. Legislative and administrative barriers impeding the free flow of necessary munitions and war supplies are suspended for the duration.

JOINT ECONOMIC COMMITTEES—UNITED STATES AND CANADA

These committees were established in June 1941 to study and report to the respective governments on the possibilities of (1) effecting a more economic, efficient, and coordinated utilization of the combined resources of the two countries in the production of defense requirements, and (2) reducing the probable postwar economic dislocation consequent upon the changes which the economy in each country is now undergoing.

MATERIALS COORDINATING COMMITTEE—UNITED STATES AND CANADA

This committee was formed in May 1941 for the primary purpose of making possible the free exchange of vital information between responsible officials of the two governments relating to their supplies of strategic raw materials required for defense production.

PERMANENT JOINT BOARD ON DEFENSE—UNITED STATES AND CANADA

This board was set up by the United States and Canada in August 1940 to carry out studies relating to sea, land, and air problems, including personnel and material, and to consider, broadly, the defense of the northern half of the Western Hemisphere.

COMBINED CHIEFS OF STAFF—UNITED STATES AND GREAT BRITAIN

CCS, established in February 1942, works to insure the complete coordination of the war effort of Great Britain and the United States, including the production and distribution of war supplies, and to provide for full British and American collaboration with the other United Nations against the enemy.

Joint U. S. Chiefs of Staff

This body is responsible for coordination between the Army and Navy and represents the United States in the Combined Chiefs of Staff. In operations where the United States has the sole or primary responsibility it is charged with the strategic conduct of the war. It is also charged with the broad program of war requirements based on approved strategic policy; for the allocation of munitions resources based on strategic needs and the availability of means of transportation; and for the requirements for overseas transportation based on approved strategic priority.

The *Office of Strategic Services* (OSS) is under the jurisdiction of the Joint U. S. Chiefs of Staff, with the functions of (a) collecting and analyzing such strategic information as the staff may require and (b) planning and operating any special services as directed by the staff.

MUNITIONS ASSIGNMENTS BOARD—UNITED STATES AND GREAT BRITAIN

Committees of this board, established in January 1942, advise on all assignments, both in quantity and priority, whether to Great Britain, the United States, or some other of the United Nations in accordance with strategic needs. The board is a supporting agency to the Combined Chiefs of Staff.

COMBINED FOOD BOARD—UNITED STATES AND THE UNITED KINGDOM

The Combined Food Board was created in June 1942 to ob-

tain a planned and expeditious utilization of the food resources of the United Nations. The board considers, investigates, and formulates plans with regard to any question relating to the supply, production, transportation, disposal, allocation, or distribution, in or to any part of the world, of foods, agricultural equipment, etc.

COMBINED RAW MATERIALS BOARD—UNITED STATES AND GREAT BRITAIN

Formed in January 1942, this board plans the best and speediest development, expansion, and use of the raw-material resources. Members of the board confer with representatives of the other United Nations to insure the maximum supply and provide for the most effective utilization of the joint resources and strategic materials of the United Nations.

COMBINED SHIPPING ADJUSTMENT BOARD—UNITED STATES AND GREAT BRITAIN

Created in January 1942, this board's function is to coordinate into one harmonious policy the work of the British Ministry of War Transport and the U. S. War Shipping Administration.

COMBINED PRODUCTION AND RESOURCES BOARD—UNITED STATES, GREAT BRITAIN, CANADA

This board was created in June 1942 in order to complete the organization needed for the most effective use of the combined resources of these countries for the prosecution of the war. It combines the production program of the three countries into a single integrated program and, in close collaboration with the Combined Chiefs of Staff, works to assure the continuous adjustment of the program to meet changing military requirements.

It arranges for conferences among U. S., Canadian, and United Kingdom personnel from time to time to study particular production needs, and utilizes the Joint War Production Staff in London, the Combined Raw Materials Board, the Joint Aircraft Committee, and other agencies in such manner and to such extent as it deems necessary.

JOINT MEXICAN-UNITED STATES DEFENSE COMMISSION

This commission was officially established in February 1942 to study problems relating to the common defense of the United States and Mexico, to consider broad plans for the defense of Mexico and adjacent areas of the United States, and to recommend cooperative measures to the respective governments.

JOINT BRAZIL-UNITED STATES DEFENSE COMMISSION

The commission is composed of military delegates of the two countries and holds meetings in Washington for the purpose of making staff plans for the mutual defense of the Western Hemisphere. It was established in August 1942.

INTER-AMERICAN DEFENSE BOARD

This is a permanently constituted organization composed of military, naval, and aviation technical delegates appointed by each of the governments of the 21 American republics. Established in January 1942, it is located in Washington and is an autonomous international organization within the sphere of action and purposes of the union of the American republics and under the auspices of the Pan American Union. It studies and recommends to the governments of the American republics measures necessary for Western Hemisphere defense.

PACIFIC WAR COUNCIL

In March 1942 this council was formed to consider matters of policy relating to the joint war effort. Meetings are held at the White House and diplomatic representatives of the following nations attend: United States, Great Britain, China, The Netherlands, Australia, Canada, New Zealand, and the Commonwealth of the Philippines.

* * *

COOPERATING ORGANIZATIONS

PAN AMERICAN UNION

The Pan American Union, established in 1890, is an international organization of the 21 American republics. Its purpose is to promote closer relations and better understanding among them. It is maintained by the governments of these republics, and is governed by a board composed of the Secretary of State of the United States and the ambassadors and ministers in Washington of the other American republics.

The functions of the Pan American Union are partly official and partly unofficial in character. In its official capacity, the Pan American Union serves as the permanent secretariat of the international conferences of American states; it prepares the programs and regulations of each conference, compiles documentary material for the information of the delegates; following each conference, it assists in obtaining ratification of the treaties and conventions, and in securing action on the resolutions and recommendations; it likewise aids in the preparation for many of the technical or specialized inter-American conferences, of which up to 1943 there have been nearly 200.

In its unofficial capacity, the Pan American Union is a center of information on virtually every question affecting the interests and welfare of the nations of the American continents. In this capacity its facilities are available to the citizens, as well as to the governments of all Western Hemisphere republics, and each year thousands of inquiries covering the widest range of subjects are received and answered.

For administrative purposes, technical divisions have been organized in the fields of economics, commerce, and statistics; intellectual cooperation, agriculture, juridical relations, labor and social welfare, and travel. The Columbus Memorial Library of the Pan American Union has more than 100,000 volumes on the American republics and on inter-American relations. A monthly Bulletin (published in English, Spanish, and Portuguese) contains detailed information relating to the cultural, economic, and social development of the republics of America. In addition, the Union publishes monographs and pamphlets intended to make the American republics better known.

AMERICAN NATIONAL RED CROSS

Although the American National Red Cross is not strictly a government agency, it operates under a charter granted by Congress on January 5, 1905, to furnish volunteer aid for the sick and wounded of the armies in time of war, in accordance with the Treaty of Geneva, to which the United States became a signatory in 1882. It also was chartered to "continue and carry on a system of national and international relief in time of peace and to apply the same in mitigating the sufferings caused by pestilence, famine, fire, floods, and other national calamities."

The American Red Cross was organized in 1881 with Clara Barton as president. It was re-incorporated by act of Congress in 1905 under government supervision. The by-laws provide that the President of the United States, upon his acceptance, shall be ex-officio president of the organization. Its active head since April 12, 1938, has been Norman H. Davis, chairman of the Central Committee.

There are approximately 3,750 local Red Cross chapters throughout the country with more than 6,000 branches. Membership totals more than 15 million adults, with more than 14 million school boys and girls enrolled in the American Junior Red Cross. In 1942 the Red Cross was called upon to expand its program to meet the needs of a nation at war. The task was twofold: to aid the morale of the armed forces and to safeguard the life and health of the civilian population. Through its field-director staffs on military and naval posts and its home-service workers in local chapters, it provides the important link of communication between servicemen at home and abroad and their families.

Field directors and staff members already are assigned to 776 stations, with about 3,000 of this personnel serving overseas. By midyear 1942 nearly 500,000 men in the armed forces had received counsel and assistance from field directors and their staffs. Organized in February 1941, when the surgeons general of the Army and Navy requested 15,000 pints of blood, the Blood Donor Service of the Red Cross today ranks as the largest undertaking of its kind in medical history. After America entered the war, the Army and Navy asked for 380,000 pints of blood by June 1, 1942. To meet this demand the Red Cross doubled its collecting centers to 18, and the quota was exceeded by 81,493 units. The Army-Navy request for blood was increased to 2,500,000 additional pints to be provided by July 1, 1943, and a total of 2,716,502 pints was collected.

The Red Cross maintains a War Reserve from which the Army and Navy recruit nurses. As of June 30, 1943, a total of 37,468 Red Cross nurses were on active duty with the armed forces, while those available for military service but unassigned numbered 11,123. The present recruiting goal of the Red Cross is 2,500 nurses a month. The Student Reserve, a new division of the Nursing Service, was organized in 1942 for the enrollment of volunteers from senior classes of all nursing schools meeting Red Cross requirements.

INTERNATIONAL RED CROSS

The Red Cross of the world comprises the International Red Cross Committee and the League of Red Cross Societies. The committee is an independent body composed of Swiss citizens, and its permanent headquarters are at Geneva.

Under the terms of the Geneva Prisoners-of-War Convention of 1929, the International Red Cross Committee maintains at Geneva a Central Agency for Prisoners of War and each nation agrees to set up a central bureau for prisoners-of-war information to cooperate with it. Names of prisoners and civilian internees are assembled by these bureaus, cabled to the Central Agency in Geneva, listed and filed there for permanent reference, and transmitted at once to the central information bureau of the country interested.

Delegates of the International Red Cross Committee carry on their humanitarian work among the prisoners and internees and visit the camps to see that they comply with the provisions of the Geneva Convention. If there are any complaints the camp leaders are free to speak of them to these neutral visitors, who may request improvements.

It is through the International Committee in Geneva that all arrangements are negotiated for the sending of mail and food parcels to prisoners of war. Thousands of inquiries for civilians missing in war-torn countries are also handled through its Central Agency.

HISTORIC AMERICAN SPEECHES AND DOCUMENTS

DECLARATION OF INDEPENDENCE

JULY 4, 1776

THE UNANIMOUS DECLARATION OF THE THIRTEEN UNITED STATES OF AMERICA,

When in the Course of human events, it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the Powers of the earth, the separate and equal station to which the Laws of Nature and of Nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness. That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed, That whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or to abolish it, and to institute new Government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness. Prudence, indeed, will dictate that Governments long established should not be changed for light and transient causes; and accordingly all experience hath shown, that mankind are more disposed to suffer, while evils are sufferable, than to right themselves by abolishing the forms to which they are accustomed. But when a long train of abuses and usurpations, pursuing invariably the same Object evinces a design to reduce them under absolute Despotism, it is their right, it is their duty, to throw off such Government, and to provide new Guards for their future security.— Such has been the patient suffering of these Colonies; and such is now the necessity which constrains them to alter their former Systems of Government. The history of the present King of Great Britain is a history of repeated injuries and usurpations, all having in direct object the establishment of an absolute Tyranny over these States. To prove this, let Facts be submitted to a candid world.

He has refused his Assent to Laws, the most wholesome and necessary for the public good.

He has forbidden his Governors to pass Laws of immediate and pressing importance, unless suspended in their operation till his Assent should be obtained; and when so suspended, he has utterly neglected to attend to them.

He has refused to pass other Laws for the accommodation of large districts of people, unless those people would relinquish the right of Representation in the Legislature, a right inestimable to them and formidable to tyrants only.

He has called together legislative bodies at places unusual, uncomfortable, and distant from the depository of their Public Records, for the sole purpose of fatiguing them into compliance with his measures.

He has dissolved Representative Houses repeatedly, for opposing with manly firmness his invasions on the rights of the people.

He has refused for a long time, after such dissolutions, to cause others to be elected; whereby the Legislative Powers, incapable of Annihilation, have returned to the People at large for their exercise; the State remaining in the mean time exposed to all the dangers of invasion from without, and convulsions within.

He has endeavoured to prevent the population of these States; for that purpose obstructing the Laws of Naturalization of Foreigners; refusing to pass others to encourage their migration hither, and raising the conditions of new Appropriations of Lands.

He has obstructed the Administration of Justice, by refusing his Assent to Laws for establishing Judiciary Powers.

He has made Judges dependent on his Will alone, for the tenure of their offices, and the amount and payment of their salaries.

He has erected a multitude of New Offices, and sent hither swarms of Officers to harass our People, and eat out their substance.

He has kept among us, in times of peace, Standing Armies without the Consent of our legislature.

He has affected to render the Military independent of and superior to the Civil Power.

He has combined with others to subject us to a jurisdiction foreign to our constitution, and unacknowledged by our laws; giving his Assent to their acts of pretended legislation:

For quartering large bodies of armed troops among us:

For protecting them, by a mock Trial, from Punishment for any Murders which they should commit on the Inhabitants of these States:

For cutting off our Trade with all parts of the world:

For imposing taxes on us without our Consent:

For depriving us in many cases, of the benefits of Trial by Jury:

For transporting us beyond Seas to be tried for pretended offences:

For abolishing the free System of English Laws in a neighbouring Province, establishing therein an Arbitrary government, and enlarging its Boundaries so as to render it at once an example and fit instrument for introducing the same absolute rule into these Colonies:

For taking away our Charters, abolishing our most valuable Laws, and altering fundamentally the Forms of our Governments:

For suspending our own Legislature, and declaring themselves invested with Power to legislate for us in all cases whatsoever.

He has abdicated Government here, by declaring us out of his Protection and waging War against us.

He has plundered our seas, ravaged our Coasts, burnt our towns, and destroyed the lives of our people.

He is at this time transporting large armies of foreign mercenaries to compleat the works of death, desolation and tyranny, already begun with circumstances of Cruelty & perfidy scarcely paralleled in the most barbarous ages, and totally unworthy the Head of a civilized nation.

He has constrained our fellow Citizens taken Captive on the high Seas to bear Arms against their Country, to become the executioners of their friends and Brethren, or to fall themselves by their Hands.

He has excited domestic insurrections amongst us, and has endeavoured to bring on the inhabitants of our frontiers, the merciless Indian Savages, whose known rule of warfare, is an undistinguished destruction of all ages, sexes and conditions.

In every stage of these Oppressions We have Petitioned for Redress in the most humble terms: Our repeated Petitions have been answered only by repeated injury. A Prince, whose character is thus marked by every act which may define a Tyrant, is unfit to be the ruler of a free People.

Nor have We been wanting in attention to our Brittish brethren. We have warned them from time to time of attempts by their legislature to extend an unwarrantable jurisdiction over us. We have reminded them of the circumstances of our emigration and settlement here. We have appealed to their native justice and magnanimity, and we have conjured them by the ties of our common kindred to disavow these usurpations, which, would inevitably interrupt our connections and correspondence. They too have been deaf to the voice of justice and of consanguinity. We must, therefore, acquiesce in the necessity, which denounces our Separation, and hold them, as we hold the rest of mankind, Enemies in War, in Peace Friends.

We, therefore, the Representatives of the united States of America, in General Congress, Assembled, appealing to the Supreme Judge of the world for the rectitude of our intentions, do, in the Name, and by Authority of the good People of these Colonies, solemnly publish and declare, That these United Colonies are, and of Right ought to be Free and Independent States; that they are Absolved from all Allegiance to the British Crown, and that all political connection between them and the State of Great Britain, is and ought to be totally dissolved; and that as Free and Independent States, they have full Power to levy War, conclude Peace, contract Alliances, establish Commerce, and to do all other Acts and Things which Independent States may of right do. And for the support of this Declaration, with a firm reliance on the Protection of Divine Providence, we mutually pledge to each other our Lives, our Fortunes and our sacred Honor.

* * *

PREAMBLE TO THE CONSTITUTION OF THE UNITED STATES

SEPTEMBER 17, 1787

We, the people of the United States, in Order to form a more perfect Union, establish Justice, insure domestic Tranquillity, provide for the common defense, promote the general Welfare, and secure the Blessings of Liberty to ourselves and our Posterity, do ordain and establish this Constitution for the United States of America.

THE BILL OF RIGHTS

NOVEMBER 3, 1791

The first ten amendments to the Constitution, known as the Bill of Rights:

ART. I

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the government for a redress of grievances.

ART. II

A well regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed.

ART. III

No Soldier shall, in time of peace be quartered in any house, without the consent of the Owner, nor in time of war, but in a manner to be prescribed by law.

ART. IV

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

ART. V

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

ART. VI

In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor, and to have the Assistance of Counsel for his defence.

ART. VII

In Suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury, shall be otherwise re-examined in any Court of the United States, than according to the rules of the common law.

ART. VIII

Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

ART. IX

The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.

ART. X

The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

* * *

THE MONROE DOCTRINE

JAMES MONROE—SEVENTH ANNUAL ADDRESS TO CONGRESS—DECEMBER 2, 1823

. . . At the proposal of the Russian Imperial Government, made through the minister of the Emperor residing here, a full power and instructions have been transmitted to the minister of the United States at St. Petersburg to arrange by amicable negotiation the respective rights and interests of the two nations on the northwest coast of this continent. A similar proposal had been made by His Imperial Majesty to the Government of Great Britain, which has likewise been acceded to. The Government of the United States has been desirous by this friendly proceeding of manifesting the great value which they have invariably attached to the friendship of the Emperor and their solicitude to cultivate the best understanding with his Government. In the discussions to which this interest has given rise and in the arrangements by which they may terminate the occasion has been judged proper for asserting, as a principle in which the rights and interests of the United States are involved, that the American continents, by the free and independent condition which they have assumed and maintain, are henceforth not to be considered as subjects for future colonization by any European powers. . . .

It was stated at the commencement of the last session that a great effort was then making in Spain and Portugal to improve the condition of the people of those countries, and that it appeared to be conducted with extraordinary moderation. It need scarcely be remarked that the result has been so far very different from what was then anticipated. Of events in that quarter of the globe, with which we have so much intercourse and from which we derive our origin, we have always been anxious and interested spectators. The citizens of the United States cherish sentiments the most friendly in favor of the liberty and happiness of their fellow-men on that side of the Atlantic. In the wars of the European powers in matters relating to themselves we have never taken any part, nor does it comport with our policy so to do. It is only when our rights are invaded or seriously menaced that we resent injuries or make preparation for our defense. With the movements in this hemisphere we are of necessity more immediately connected, and by causes which must be obvious to all enlightened and impartial observers. The political system of the allied powers is essentially different in this respect from that of America. This difference proceeds from that which exists in their respective Governments; and to the defense of our own, which has been achieved by the loss of so much blood and treasure, and matured by the wisdom of their most enlightened citizens, and under which we have enjoyed unexampled felicity, this whole nation is devoted. We owe it, therefore, to candor and to the amicable relations existing between the United States and those powers to declare that we

should consider any attempt on their part to extend their system to any portion of this hemisphere as dangerous to our peace and safety. With the existing colonies or dependencies of any European power we have not interfered and shall not interfere. But with the Governments who have declared their independence and maintained it, and whose independence we have, on great consideration and on just principles, acknowledged, we could not view any interposition for the purpose of oppressing them, or controlling in any other manner their destiny, by any European power in any other light than as the manifestation of an unfriendly disposition toward the United States. In the war between those new Governments and Spain we declared our neutrality at the time of their recognition, and to this we have adhered, and shall continue to adhere, provided no change shall occur which, in the judgment of the competent authorities of this Government, shall make a corresponding change on the part of the United States indispensable to their security.

The late events in Spain and Portugal shew that Europe is still unsettled. Of this important fact no stronger proof can be adduced than that the allied powers should have thought it proper, on any principle satisfactory to themselves, to have interposed by force in the internal concerns of Spain. To what extent such interposition may be carried, on the same principle, is a question in which all independent powers whose governments differ from theirs are interested, even those most remote, and surely none more so than the United States. Our policy in regard to Europe, which was adopted at an early stage of the wars which have so long agitated that quarter of the globe, nevertheless remains the same, which is, not to interfere in the internal concerns of any of its powers; to consider the government *de facto* as the legitimate government for us; to cultivate friendly relations with it, and to preserve those relations by a frank, firm, and manly policy, meeting in all instances the just claims of every power, submitting to injuries from none. But in regard to those continents circumstances are eminently and conspicuously different. It is impossible that the allied powers should extend their political system to any portion of either continent without endangering our peace and happiness; nor can anyone believe that our southern brethren, if left to themselves, would adopt it of their own accord. It is equally impossible, therefore, that we should behold such interposition in any form with indifference. If we look to the comparative strength and resources of Spain and those new Governments, and their distance from each other, it must be obvious that she can never subdue them. It is still the true policy of the United States to leave the parties to themselves, in the hope that other powers will pursue the same course. . . .

* * *

ABRAHAM LINCOLN'S GETTYSBURG ADDRESS

NOVEMBER 19, 1863

Fourscore and seven years ago our fathers brought forth on this continent a new nation, conceived in liberty, and dedicated to the proposition that all men are created equal.

Now we are engaged in a great civil war, testing whether that nation, or any nation so conceived and so dedicated, can long endure. We are met on a great battlefield of that war. We have come to dedicate a portion of that field as a final resting-place of those who here gave their lives that that nation might live. It is altogether fitting and proper that we should do this.

But, in a larger sense we cannot dedicate—we cannot consecrate—we cannot hallow—this ground. The brave men, living and dead, who struggled here, have consecrated it, far above our poor power to add or detract. The world will little note nor long remember what we say here, but it can never forget what they did here. It is for us, the living, rather, to be dedicated here to the unfinished work which they who fought here have thus far so nobly advanced. It is rather for us to be here dedicated to the great task remaining before us—that from these honored dead we take increased devotion to that cause for which they gave the last full measure of devotion; that we here highly resolve that these dead shall not have died in vain; that this nation, under God, shall have a new birth of freedom; and that government of the people, by the people, for the people, shall not perish from the earth.

* * *

WOODROW WILSON'S SPEECH FOR WAR AGAINST GERMANY

APRIL 2, 1917

. . . We are now about to accept gauge of battle with this natural foe to liberty and shall, if necessary, spend the whole force of the nation to check and nullify its pretentions and its power. We are glad, now that we see the facts with no veil of false pretense about them, to fight thus for the ultimate peace of the world and for the liberation of its peoples, the German peoples included; for the rights of nations great and small and the privilege of men everywhere to choose their way of life and of obedience. The world must be made safe for democracy. Its peace must be planted upon the tested foundations of political liberty. We have no selfish ends to serve. We desire no conquest, no dominion. We seek no indemnities for ourselves, no material compensation for the sacrifices we shall freely make. We are but one of the champions of the rights of mankind. We shall be satisfied when those rights have been made as secure as the faith and the freedom of nations can make them.

Just because we fight without rancor and without selfish object, seeking nothing for ourselves but what we shall wish to share with all free peoples, we shall, I feel confident, conduct our operations as belligerents without passion and ourselves observe with proud punctilio the principles of right and of fair play we profess to be fighting for. . . .

It will be all the easier for us to conduct ourselves as belligerents in a high spirit of right and fairness because we act without animus, not in enmity towards a people or with the desire to bring any injury or disadvantage upon them, but only in armed opposition to an irresponsible government which has thrown aside all considerations of humanity and of right and is running amuck. We are, let me say again, the sincere friends of the German people, and shall desire nothing so much as the early reëstablishment of intimate relations of mutual advantage between us,—however hard it may be for them, for the time being, to believe that this is spoken from our hearts. We have borne with

their present Government through all these bitter months because of that friendship,—exercising a patience and forbearance which would otherwise have been impossible. We shall, happily, still have an opportunity to prove that friendship in our daily attitude and actions towards the millions of men and women of German birth and native sympathy who live amongst us and share our life, and we shall be proud to prove it towards all who are in fact loyal to their neighbors and to the Government in the hour of test. They are, most of them, as true and loyal Americans as if they had never known any other fealty or allegiance. They will be prompt to stand with us in rebuking and restraining the few who may be of a different mind and purpose. If there should be disloyalty, it will be dealt with with a firm hand of stern repression; but, if it lifts its head at all, it will lift it only here and there and without countenance except from a lawless and malignant few.

It is a distressing and oppressive duty, Gentlemen of the Congress, which I have performed in thus addressing you. There are, it may be, many months of fiery trial and sacrifice ahead of us. It is a fearful thing to lead this great peaceful people into war, into the most terrible and disastrous of all wars, civilization itself seeming to be in the balance. But the right is more precious than peace, and we shall fight for the things which we have always carried nearest our hearts,—for democracy, for the right of those who submit to authority to have a voice in their own Governments, for the rights and liberties of small nations, for a universal dominion of right by such a concert of free peoples as shall bring peace and safety to all nations and make the world itself at last free. To such a task we can dedicate our lives and our fortunes, everything that we are and everything that we have, with the pride of those who know that the day has come when America is privileged to spend her blood and her might for the principles that gave her birth and happiness and the peace which she has treasured. God helping her, she can do no other.

* * *

THE FOURTEEN POINTS

JANUARY 8, 1918

On January 8, 1918 President Woodrow Wilson appeared before both Houses of Congress and delivered the most important of all his addresses on war aims. It contained the famous Fourteen Points:

I. Open covenants of peace, openly arrived at, after which there shall be no private international understandings of any kind, but diplomacy shall proceed always frankly and in the public view.

II. Absolute freedom of navigation upon the seas, outside territorial waters, alike in peace and in war, except as the seas may be closed in whole or in part by international action for the enforcement of international covenants.

III. The removal, so far as possible, of all economic barriers and the establishment of an equality of trade conditions among all the nations consenting to the peace and associating themselves for its maintenance.

IV. Adequate guarantees given and taken that national armaments will be reduced to the lowest point consistent with domestic safety.

V. A free, open-minded and absolutely impartial adjustment of all colonial claims, based upon a strict observance of the principle that in determining all such questions of sovereignty the interests of the populations concerned must have equal weight with the equitable claims of the Government whose title is to be determined.

VI. The evacuation of all Russian territory and such a settlement of all questions affecting Russia as will secure the best and freest cooperation of the other nations of the world in obtaining for her an unhampered and unembarrassed opportunity for the independent determination of her own political development and national policy, and assure her of a sincere welcome into the society of free nations under institutions of her own choosing, and more than a welcome, assistance also of every kind that she may need and may herself desire. The treatment accorded Russia by her sister nations in the months to come, will be the acid test of their good will, of their comprehension of her needs as distinguished from their own interests and of their intelligent and unselfish sympathy.

VII. Belgium, the whole world will agree, must be evacuated and restored, without any attempt to limit the sovereignty which she enjoys in common with all other free nations. No other single act will serve as this will serve to restore confidence among the nations in the laws which they have themselves set and determined for the government of their relations with one another. Without this healing act the whole structure and validity of international law is forever impaired.

VIII. All French territory should be freed and the invaded portions restored, and the wrong done to France by Prussia in 1871 in the matter of Alsace-Lorraine, which has unsettled the peace of the world for nearly fifty years, should be righted in order that peace may once more be made secure in the interest of all.

IX. A readjustment of the frontiers of Italy should be effected along clearly recognizable lines of nationality.

X. The peoples of Austria-Hungary, whose place among the nations we wish to see safeguarded and assured, should be accorded the freest opportunity of autonomous development.

XI. Rumania, Serbia, and Montenegro should be evacuated, occupied territories restored, Serbia accorded free and secure access to the sea, and the relations of the several Balkan states to one another determined by friendly counsel along historically established lines of allegiance and nationality, and international guarantees of the political and economic independence and territorial integrity of the several Balkan states should be entered into.

XII. The Turkish portions of the present Ottoman Empire should be assured a secure sovereignty, but the other nationalities which are now under Turkish rule should be assured an undoubted security of life and an absolutely unmolested opportunity of autonomous development, and the Dardanelles should be permanently opened as a free passage to the ships and commerce of all nations under international guarantees.

XIII. An independent Polish state should be erected which should include the territories inhabited by indisputably Polish populations, which should be assured a free and secure access to the sea, and whose political and economic independence and territorial integrity should be guaranteed by international covenant.

XIV. A general association of nations must be formed under specific covenants for the purpose of affording mutual guarantees of political independence and territorial integrity to great and small alike.

DECLARATION OF THE UNITED NATIONS

DECLARATION SIGNED AT WASHINGTON, JANUARY 1, 1942

A joint declaration by the United States of America, the United Kingdom of Great Britain and Northern Ireland, the Union of Soviet Socialist Republics, China, Australia, Belgium, Canada, Costa Rica, Cuba, Czechoslovakia, Dominican Republic, El Salvador, Greece, Guatemala, Haiti, Honduras, India, Luxembourg, Netherlands, New Zealand, Nicaragua, Norway, Panama, Poland, South Africa, Yugoslavia.

The Governments signatory hereto,

Having subscribed to a common program of purposes and principles embodied in the Joint Declaration of the President of the United States of America and the Prime Minister of the United Kingdom of Great Britain and Northern Ireland dated August 14, 1941, known as the Atlantic Charter,

Being convinced that complete victory over their enemies is essential to defend life, liberty, independence, and religious freedom, and to preserve human rights and justice in their own lands as well as in other lands, and that they are now engaged in a common struggle against savage and brutal forces seeking to subjugate the world, DECLARE:

(1) Each Government pledges itself to employ its full resources, military or economic, against those members of the Tripartite Pact and its adherents with which such Government is at war.

(2) Each Government pledges itself to cooperate with the Governments signatory hereto and not to make a separate armistice or peace with the enemies.

The foregoing declaration may be adhered to by other nations which are, or which may be, rendering material assistance and contributions in the struggle for victory over Hitlerism.

Done at Washington, January 1, 1942.

The United States of America by *Franklin D. Roosevelt*
The United Kingdom of Great Britain and Northern Ireland by *Winston Churchill*
On Behalf of the Government of the Union of Soviet Socialist Republics, *Maxim Litvinoff*, Ambassador.
National Government of the Republic of China, *Tse Vung Soong*, Minister for Foreign Affairs
The Commonwealth of Australia by *R. G. Casey*
The Kingdom of Belgium by *Comte R. V. D. Straten*
Canada by *Leighton McCarthy*
The Republic of Costa Rica by *Luis Fernandez*
The Republic of Cuba by *Aurelio F. Concheso*
Czechoslovak Republic by *V. S. Hurban*
The Dominican Republic by *J. M. Troncoso*
The Republic of El Salvador by *C. A. Alfaro*
The Kingdom of Greece by *Cimon P. Diamantopoulos*
The Republic of Guatemala by *Enrique Lopez-Herrarte*
La République d'Haiti by *Fernand Dennis*
The Republic of Honduras by *Julian R. Caceres*
India by *Girja Shankar Bajpai*
The Grand Duchy of Luxembourg by *Hugues Le Gallais*
The Kingdom of the Netherlands by *A. Loudon*
Signed on Behalf of the Government of the Dominion of New Zealand by *Frank Langstone*
The Republic of Nicaragua by *Leon De Bayle*
The Kingdom of Norway by *W. Munthe de Morgenstierne*
The Republic of Panama by *Jaen Guardia*
The Republic of Poland by *Jan Ciechanowski*
The Union of South Africa by *Ralph W. Close*
The Kingdom of Yugoslavia by *Constantin A. Fotitch*

Nations which signed the United States Declaration at a later date are:

The Republic of Mexico by *Ezequiel Padilla* (June 5, 1942)

The Philippines Commonwealth by *President Manuel Quezon* (June 10, 1942)

The Kingdom of Ethiopia by *Haile Selassie*, Emperor (October 9, 1942)

The Kingdom of Iraq by *Ali Jawdat Al Ayoubi* (January 16, 1943).

The United States of Brazil by *President Getulio Vargas* (February 8, 1943)

The Republic of Bolivia by *Tomas Manuel Elio* (April 27, 1943)

The Kingdom of Iran by *Mohammed Schayesteh* (September 14, 1943)

* * *

ATLANTIC CHARTER

AUGUST 14, 1941

The President of the United States of America and the Prime Minister, Mr. Churchill, representing His Majesty's Government in the United Kingdom, being met together, deem it right to make known certain common principles in the national policies of their respective countries on which they base their hopes for a better future for the world.

FIRST, their countries seek no aggrandizement, territorial or other;

SECOND, they desire to see no territorial changes that do not accord with the freely expressed wishes of the peoples concerned;

THIRD, they respect the right of all peoples to choose the form of government under which they will live; and they wish to see sovereign rights and self-government restored to those who have been forcibly deprived of them;

FOURTH, they will endeavor, with due respect for their existing obligations, to further the enjoyment by all States, great or small, victor or vanquished, of access, on equal terms, to the trade and to the raw materials of the world which are needed for their economic prosperity;

FIFTH, they desire to bring about the fullest collaboration between all nations in the economic field with the object of securing, for all, improved labor standards, economic adjustment, and social security;

SIXTH, after the final destruction of the Nazi tyranny, they hope to see established a peace which will afford to all nations the means of dwelling in safety within their own boundaries, and which will afford assurance that all the men in all the lands may live out their lives in freedom from fear and want;

SEVENTH, such a peace should enable all men to traverse the high seas and oceans without hindrance;

EIGHTH, they believe that all of the nations of the world, for realistic as well as spiritual reasons, must come to the abandonment of the use of force. Since no future peace can be maintained if land, sea, or air armaments continue to be employed by nations which threaten, or may threaten, aggression outside of their frontiers, they believe, pending the establishment of a wider and permanent system of general security, that the disarmament of such nations is essential. They will likewise aid and encourage all other practicable measures which will lighten for peace-loving peoples the crushing burden of armaments.

Franklin D. Roosevelt
Winston S. Churchill

* * *

THE FOUR FREEDOMS

FRANKLIN D. ROOSEVELT—MESSAGE TO CONGRESS—JANUARY 6, 1941

. . . In the future days, which we seek to make secure, we look forward to a world founded upon four essential human freedoms.

The first is freedom of speech and expression—everywhere in the world.

The second is freedom of every person to worship God in his own way—everywhere in the world.

The third is freedom from want—which, translated into world terms, means economic understandings which will secure to every nation a healthy peacetime life for its inhabitants—everywhere in the world.

The fourth is freedom from fear—which, translated into world terms, means a world-wide reduction of armaments to such a point and in such a thorough fashion that no nation will be in a position to commit an act of physical aggression against any neighbor—anywhere in the world.

This is no vision of a distant millennium. It is a definite basis for a kind of world attainable in our own time and generation. That kind of world is the very antithesis of the so-called new order of tyranny which the dictators seek to create with the crash of a bomb. . . .

* * *

THE MOSCOW CONFERENCE

OCTOBER 19-30, 1943

JOINT FOUR-NATION DECLARATION

The Governments of the United States of America, United Kingdom, the Soviet Union, and China:

United in their determination, in accordance with the Declaration by the United Nations of January 1, 1942, and subsequent declarations, to continue hostilities against those Axis powers with which they respectively are at war until such powers have laid down their arms on the basis of unconditional surrender;

conscious of their responsibility to secure the liberation of themselves and the peoples allied with them from the menace of aggression;

recognizing the necessity of ensuring a rapid and orderly transition from war to peace and of establishing and maintaining international peace and security with the least diversion of the world's human and economic resources for armaments;

jointly declare:

1. That their united action, pledged for the prosecution of the war against their respective enemies, will be continued for the organization and maintenance of peace and security.

2. That those of them at war with a common enemy will act together in all matters relating to the surrender and disarmament of that enemy.

3. That they will take all measures deemed by them to be necessary to provide against any violation of the terms imposed upon the enemy.

4. That they recognize the necessity of establishing at the earliest practicable date a general international organization, based on the principle of the sovereign equality of all peace-loving states, and open to membership by all such states, large and small, for the maintenance of international peace and security.

5. That for the purpose of maintaining international peace and security pending the reestablishment of law and order and the inauguration of a system of general security, they will consult with one another and as occasion requires with other members of the United Nations with a view to joint action on behalf of the community of nations.

6. That after the termination of hostilities they will not employ their military forces within the territories of other states except for the purposes envisaged in this declaration and after joint consultation.

7. That they will confer and cooperate with one another and with other members of the United Nations to bring about a practicable general agreement with respect to the regulation of armaments in the postwar period.

DECLARATION REGARDING ITALY

The Foreign Secretaries of the United States, United Kingdom, and Soviet Union have established that their three governments are in complete agreement that Allied policy toward Italy must be based upon the fundamental principle that Fascism and all its evil influence and configuration shall be completely destroyed and that the Italian people shall be given every opportunity to establish governmental and other institutions based upon democratic principles.

The Foreign Secretaries of the United States and United Kingdom declare that the action of their governments from the inception of the invasion of Italian territory, insofar as paramount military requirements have permitted has been based upon this policy.

In furtherance of this policy in the future the Foreign Secretaries of the three governments are agreed that the following measures are important and should be put into effect:

1. It is essential that the Italian Government should be made more democratic by inclusion of representatives of those sections of the Italian people who have always opposed Fascism.

2. Freedom of speech, of religious worship, of political belief, of press, and of public meeting shall be restored in full measure to the Italian people who shall also be entitled to form anti-Fascist political groups.

3. All institutions and organizations created by the Fascist regime shall be suppressed.

4. All Fascist or pro-Fascist elements shall be removed from the administration and from institutions and organizations of a public character.

5. All political prisoners of the Fascist regime shall be released and accorded full amnesty.

6. Democratic organs of local government shall be created.

7. Fascist chiefs and Army generals known or suspected to be war criminals shall be arrested and handed over to justice.

In making this declaration the three Foreign Secretaries recognize that so long as active military operations continue in Italy the time at which it is possible to give full effect to the principles stated above will be determined by the Commander in Chief on the basis of instructions received through the Combined Chiefs of Staff.

The three governments, parties to this declaration, will, at the request of any one of them, consult on this matter. It is further understood that nothing in this resolution is to operate against the right of the Italian people, ultimately to choose their own form of government.

DECLARATION ON AUSTRIA

The governments of the United Kingdom, the Soviet Union, and the United States of America are agreed that Austria, the first free country to fall a victim to Hitlerite aggression, shall be liberated from German domination.

They regard the annexation imposed on Austria by Germany on March 15, 1938 as null and void. They consider themselves as in no way bound by any changes effected in Austria since that date. They declare that they wish to see reestablished a free and independent Austria and thereby to open the way for the Austrian people themselves as well as those neighboring states which will be faced with similar problems, to find that political and economic security which is the only basis for lasting peace.

Austria is reminded, however, that she has a responsibility, which she cannot evade, for participation in the war at the side of Hitlerite Germany, and that in the final settlement account will inevitably be taken of her own contribution to her liberation.

STATEMENT SIGNED BY PRESIDENT ROOSEVELT, PRIME MINISTER CHURCHILL, AND PREMIER STALIN REGARDING ATROCITIES

The United Kingdom, the United States, and the Soviet Union have received from many quarters evidence of atrocities, massacres, and cold-blooded mass executions which are being perpetrated by Hitlerite forces in many of the countries they have overrun and from which they are now being steadily expelled. The brutalities of Hitlerite domination are no new thing and all peoples or territories in their grip have suffered from the worst form of government by terror. What is new is that many of these territories are now being redeemed by the advancing armies of the liberating powers and that in their desperation, the recoiling Hitlerite Huns are redoubling their ruthless cruelties. This is now evidenced with particular clearness by monstrous crimes of the Hitlerites on the territory of the Soviet Union which is being liberated from Hitlerites, and on French and Italian territory.

Accordingly, the aforesaid three Allied powers, speaking in the interests of the 33 United Nations, hereby solemnly declare and give full warning of their declaration as follows: At the time of granting of any armistice to any government which may be set up in Germany, those German officers and men and members of the Nazi party who have been responsible for or have taken a consenting part in the above atrocities, massacres, and executions will be sent back to the countries in which their abominable deeds were done in order that they may be judged and punished according to the laws of these liberated countries and of the free governments which will be erected therein. Lists will be compiled in all possible detail from all these countries, having regard especially to invaded parts of the Soviet Union, to Poland and Czechoslovakia, to Yugoslavia and Greece, including Crete and other islands, to Norway, Denmark, Netherlands, Belgium, Luxembourg, France, and Italy.

Thus, Germans who take part in wholesale shooting of Italian officers or in the execution of French, Dutch, Belgian, or Norwegian hostages or of Cretan peasants, or who have shared in slaughters inflicted on the people of Poland or in territories of the Soviet Union which are now being swept clear of the enemy, will know they will be brought back to the scene of their crimes and judged on the spot by the peoples whom they have outraged. Let those who have hitherto not imbrued their hands with innocent blood beware lest they join the ranks of the guilty, for most assuredly the three Allied powers will pursue them to the uttermost ends of the earth and will deliver them to their accusers in order that justice may be done.

The above declaration is without prejudice to the case of German criminals, whose offenses have no particular geographical localization and who will be punished by joint decision of the governments of the Allies.

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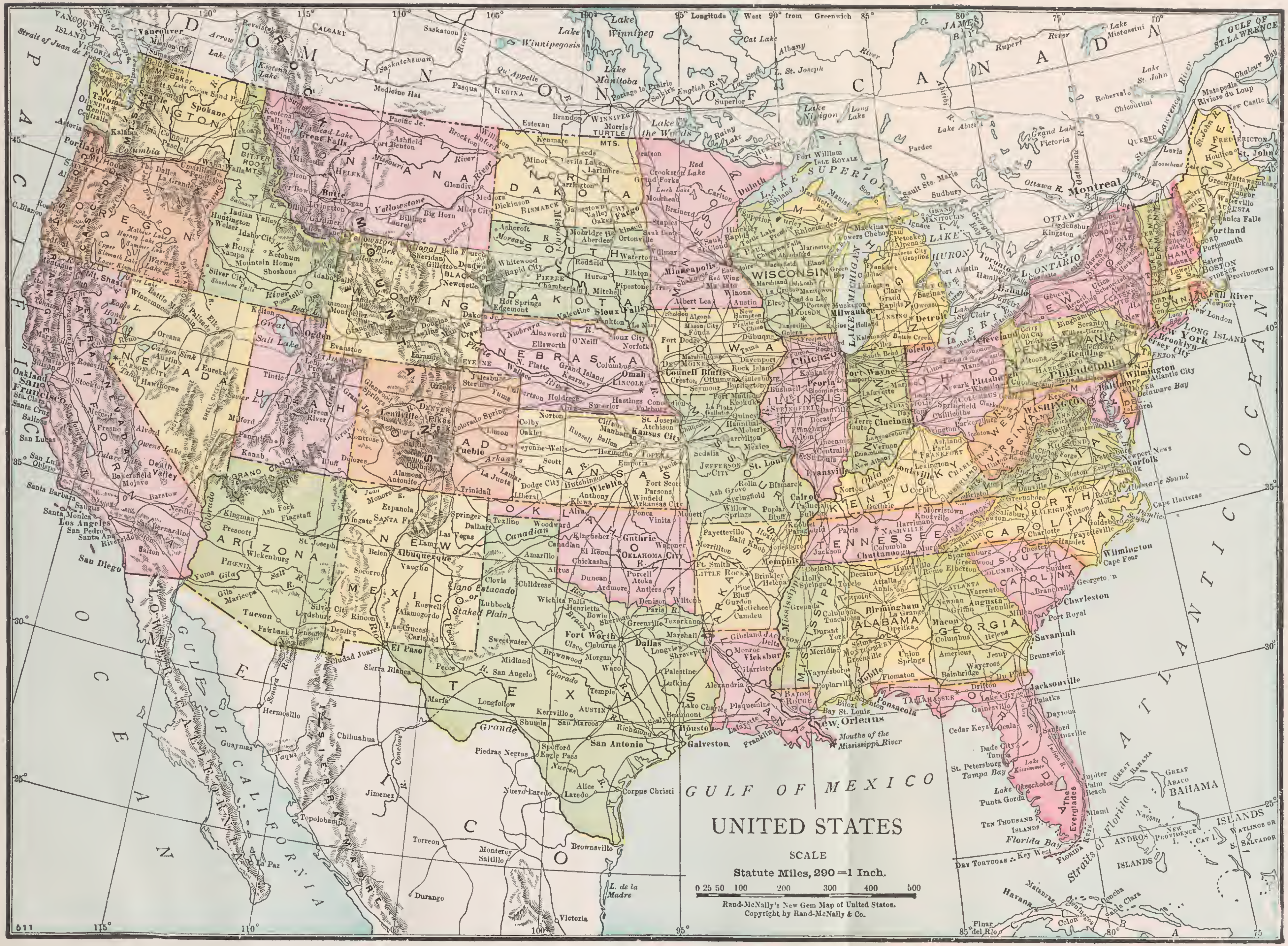
UNITED STATES
SCALE
Statute Miles, 290 = 1 Inch.
0 25 50 100 200 300 400 500
Rand-McNally's New Gem Map of United States.
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DOMINION OF CANADA
GULF OF MEXICO
ATLANTIC OCEAN
PACIFIC OCEAN
GULF OF CALIFORNIA
MEXICO
WASHINGTON
OREGON
CALIFORNIA
NEVADA
IDAHO
MONTANA
WYOMING
UTAH
COLORADO
ARIZONA
NEW MEXICO
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
OKLAHOMA
TEXAS
MINNESOTA
IOWA
MISSOURI
ARKANSAS
LOUISIANA
WISCONSIN
ILLINOIS
MICHIGAN
INDIANA
OHIO
KENTUCKY
TENNESSEE
MISSISSIPPI
ALABAMA
GEORGIA
FLORIDA
SOUTH CAROLINA
NORTH CAROLINA
VIRGINIA
WEST VIRGINIA
PENNSYLVANIA
NEW YORK
MAINE
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ONTARIO
GULF OF ST. LAWRENCE
BAHAMA ISLANDS
Straits of Florida
Longitude West 90° from Greenwich
511

SECTION II—THE UNITED STATES IN PEACE AND WAR

BASIC FACTS

CHRONOLOGY OF AMERICAN HISTORY

1000—Leif Ericson reaches North American coast.

1492—Oct. 12, Columbus makes first landing in New World, in the Bahamas.

1497—John Cabot and his son Sebastian discover the North American continent, landing in Labrador. On second voyage, in 1498, the son explores North American Atlantic coast, probably to Carolina.

1513—Ponce de León discovers Florida.

—Sept. 26, Balboa sights Pacific Ocean from mountaintop in Panama.

1541—De Soto reaches Mississippi River.

1565—Saint Augustine, Florida, founded by Menéndez.

1607—May 13, Jamestown Colony, first permanent English settlement in New World, founded in Virginia.

1609—Henry Hudson, in the Half Moon, explores Hudson River to Albany, N. Y.

1619—July 30, burgesses of Virginia meet, first legislative assembly in U. S.

1620—Dec. 11, the Pilgrims arrive at Plymouth, Mass., in the Mayflower.

1626—May 6, Manhattan Island (now N. Y. City) bought from Indians by Dutch.

1630—Puritans settle on Massachusetts Bay. Charlestown and Boston founded.

1636—Harvard College founded.

1638—March 29, Swedes buy land in Delaware from Indians for settlement. Introduce log cabin to America.

1639—Jan. 14, Fundamental Order of Connecticut, first written constitution in America.

1649—April 21, Maryland Act of Toleration.

1664—Aug. 27, New Amsterdam surrendered by Dutch to English, name changed to New York; Atlantic coast from Maine to Florida under English control.

1665—Royal Charter for the Carolinas.

1669—La Salle explores Ohio River.

1670—Charleston, South Carolina, founded.

1673—Marquette explores Mississippi River for nearly 1,000 miles.

1681—March 4, Pennsylvania Charter signed, form of government to be determined by William Penn, the proprietor.

1699—French colonize Louisiana.

1735—Zenger Trial establishes principle of freedom of press in American colonies.

1754-1763—French and Indian War. Chief battlegrounds: Lake George, Lake Champlain, Ohio Valley, Louisburg (Nova Scotia), Quebec, Montreal. English victory results in Treaty of Paris, 2-10-63.

1763-1775—Land companies establish colonies west of the Appalachian Mountains. Tennessee and Kentucky scenes of principal settlements.

1765—Nov. 1, Stamp Act goes into force, provoking disorders which lead to American Revolution.

1769—First European settlement in upper California, in San Diego, which had been named by Spanish explorers in 1602.

1774—Sept. 5, meeting of First Continental Congress.

1775-1783—War for Independence, beginning with battles of Lexington and Concord, 4-19-75. Important engagements: Ticonderoga, N. Y., May 10-12, 1775; Bunker Hill, Mass., 6-17-75; Long Island, N. Y., 8-27-76; Trenton, N. J., 12-26-76; Princeton, N. J., 1-3-77; Saratoga, N. Y., Sept. 19 and Oct. 17, 1777; Brandywine, Pa., 9-11-77; Germantown, Pa., 10-4-78; Monmouth, N. J., 6-28-78; naval battle, Admiral John Paul Jones, 9-23-79; Camden, N. J., 8-17-80; Kings Mountain, S. C., 10-7-80; siege of Yorktown, Va., Sept. 30-Oct. 19, 1781, ending with surrender of British General Cornwallis and 7,000 men. Peace treaty signed between Great Britain and U. S. at Paris, 9-3-83, recognizing U. S. independence, leaving navigation of the Mississippi open to both nations, settling boundaries and financial matters.

1776—July 4, Declaration of Independence adopted by Continental Congress.

1777—Nov. 15, Articles of Confederation agreed upon in Congress, providing for establishment of the United States of America; sent to states for ratification, adopted 3-1-78.

1778—Feb. 6, Treaty of Alliance, U. S. and France, arranged by Benjamin Franklin, provides for French acknowledgment of American independence, offensive-defensive alliance against England.

1787—May, the Constitutional Convention assembles at Philadelphia, with George Washington as President.

—July 13, Northwest Ordinance providing organization of Territory and outlawing slavery in the region north of the Ohio River, east of the Mississippi, and west of Pennsylvania.

—Sept. 17, Constitution signed by delegates present, sent to states for ratification, to become operative on acceptance by nine states.

1788—June 21, Constitution becomes effective as New Hampshire becomes ninth state to ratify.

1789—March 4, first Congress of the U. S. meets in New York.

—April 30, Washington inaugurated first President of United States; Congress creates three executive departments—State, War, Treasury.

1791—Dec. 15, Bill of Rights (first 10 Amendments to Constitution) becomes effective. Establishes (1) freedom of religion, speech, press, right to assemble and to petition; (2) right to keep and bear arms; (3) restrictions on quartering soldiers in homes; (4) security against improper seizure or search; (5-9) speedy trial by jury, no excessive fines or cruel punishments, compensation for property seizure, etc.; (10) state rights. ***11th Amendment construing judicial powers takes effect 1-8-98; 12th Amendment for manner of choosing President and Vice President takes effect 9-25-04.

1794—March 7, cotton gin, machine for clearing cotton fiber from seeds, patented by Eli Whitney. Revolutionary development in the cotton-growing, slave-holding South.

1796—Sept. 17, Washington's Farewell Address to American people.

1798—Nov.-Dec., Kentucky and Virginia Resolutions against Alien and Sedition Laws. Resolutions written by Jefferson and Madison.

1800—Nov. 17, first meeting of Congress in Washington, newly built national capital.

1803—April 30, purchase of Louisiana from France, for 80,000,000 francs, doubles the size of the country, provides access to mouth of Mississippi.

—August, steamboat designed by Robert Fulton tried out on River Seine, Paris. His Clermont makes first trip, N. Y. C.-Albany, 8-17-07.

1805—Nov. 7, Lewis and Clark, exploring Northwest, reach Pacific Ocean.

1812-1814—War of 1812, declared 6-18-12, based largely on trouble with Indians supposedly instigated by British. Sea warfare at first successful, but without influence on course of war; triple invasion of Canada fails. Important battles: Detroit 8-16-12; naval battle of Lake Erie 9-10-13; Fort Niagara and Buffalo Dec. 18 and Dec. 29-31, 1813; Fort Erie 7-5-14; naval battle of Lake Champlain 9-11-14. British capture and burn Washington, D. C., in 1814, but are repulsed at Baltimore. Andrew Jackson wins battle of New Orleans 1-8-15, not having heard of war's end. Treaty of Ghent, 12-24-14, brings war to close, all captured territory returned, commission to settle boundary disputes established.

1815—March 3, U. S. declares war on Algerian pirates. Peace 6-30-15.

1818—April 28, U. S. and Great Britain sign Rush-Bagot Agreement providing for disarmament on Great Lakes, and for an unfortified frontier between U. S. and Canada.

1819—May 22, steamship Savannah, first to cross Atlantic, leaves Georgia for Liverpool.

1820—March 3, Missouri Compromise (result of first wide controversy on slavery), providing for admission of Missouri as slave state (1821), but prohibiting slavery in rest of the Louisiana Purchase north of latitude 36° 30′. (Cf. 5-30-54.)

—Oct. 20, Spain ratifies treaty ceding Florida to U. S.

1823—Dec. 2, Monroe Doctrine, enunciated by President James Monroe in his annual message to Congress, states that "the American continents, by the free and independent condition which they have assumed and maintain, are henceforth not to be considered as subjects for future colonization by any European powers" and that European intervention could not be viewed "in any other light than as the manifestation of an unfriendly disposition toward the U. S."

1831—William Lloyd Garrison establishes the publication Liberator to advocate Negro slave emancipation.

1836—Republic of Texas established, following military engagements with Mexico, after decisive battle at San Jacinto 4-21-36. (Cf. 1845.)

1838—Feb. 1, screw propeller patented by John Ericsson.

1844—May 24, first public demonstration of telegraph between Washington and Baltimore, by Samuel F. B. Morse.

—June 15, patent for vulcanized rubber issued to Charles Goodyear.

1845—Dec. 29, Texas admitted to Union.

1846-1848—War with Mexico, based on various grievances, including boundary dispute. Important battles: Monterrey 5-24-46; Santa Fe 8-18-46; Buena Vista Feb. 22-23, 1847; Cerro Gordo April 17-18, 1847; Churubusco 8-20-47; Chapultepec Sept. 12-13, 1847; Mexico City 9-14-47. Treaty of Guadalupe Hidalgo ends war 2-2-48, Mexico ceding Texas claims. Rio Grande established as boundary, New Mexico and California ceded to U. S. for $15,000,000.

1846—Aug. 10, Smithsonian Institution established by statute under terms of will of Englishman, James Smithson, for "the increase and diffusion of knowledge."

—Sept. 10, sewing machine patented by Elias Howe.

1848—Jan. 24, gold discovered at Sutter's Fort, California, leads to great gold rush of the Forty-niners next year.

1853—Dec. 30, Gadsden Purchase from Mexico, completing continental territory of U. S.

1854—March 31, Commodore Matthew C. Perry negotiates treaty with Japan, opening it to commercial intercourse with U. S.

—May 30, Kansas-Nebraska Act, repealing Missouri Compromise, opening Nebraska country to settlement on basis of popular sovereignty, providing for organization of territories of Kansas and Nebraska.

1857—March 7, Dred Scott decision by Supreme Court arouses bitter criticism in North. (Cf. 1860)

1858—Aug. 5, laying of transatlantic cable completed.

1859—Aug. 27, world's first oil well, drilled by E. L. Drake in Pennsylvania, comes into production.

—Oct. 19, John Brown's raid on Harper's Ferry, Va., forerunner of the Civil War.

1860—Presidential campaign, with Abraham Lincoln elected on sectional basis (no support in slave states), opposing extension of slavery. (Cf. 9-22-62.)

—Dec. 20, South Carolina adopts Ordinance of Secession, as protest against Lincoln election.

1861—January-May, Mississippi, Florida, Alabama, Georgia, Louisiana, Texas, Virginia, Tennessee, Arkansas, North Carolina secede from Union.

—Feb. 8, Jefferson Davis elected President, Alexander H. Stephens, Vice President, of the Confederate States of America.

—July 20, Confederate Congress meets for first time at Richmond, Va.

1861-1865—Civil War. Important events of 1861: Confederates seize federal funds and property in South 4-10; demand evacuation of Fort Sumter in Charleston, S. C., bombard it when federal troops refuse. First Battle of Bull Run 7-21, Union Army routed; North begins more extensive and systematic preparation.

1862—March 9, sea battle between Monitor and Merrimac, off Newport News, Va.; first fight between ironclads. April, Peninsula Campaign on Richmond begins, with Union forces withdrawing after severe battles lasting into July. Southern General Robert E. Lee begins to push toward Washington; Confederates cross Potomac 9-4, invade Maryland. Battle of Antietam 9-17, Lee falling back into Virginia.

—May 20, Homestead Act grants 160 acres of public domain to any settler who lives on or cultivates land for five years.

—July 1, Pacific Railway Act authorizes construction of transcontinental railroad and provides public lands or subsidy for construction.

—Sept. 22, President Lincoln issues Emancipation Proclamation, declaring all slaves in states or parts of states in rebellion 1-1-63 to be free from that date.

1863—July 1-3, Battle of Gettysburg, Pa., Union forces hold, Lee falls back on Potomac—turning point of war.

—July 4, Vicksburg, Miss., surrenders, giving Unionists command of Mississippi River, cutting off of Texas, Arkansas, Louisiana from rest of Confederacy.

—Nov. 19, Lincoln delivers Gettysburg Address on site of crucial battle, at dedication of graveyard to soldiers.

1864—May 5-6, Battle of the Wilderness (near Chancellorsville, Va.). Northern General Ulysses S. Grant maintains ground under attack by Lee, then circles Richmond, besieges Petersburg. Confederates evacuate Atlanta 9-2; Sherman marches through Georgia to the sea; Confederates abandon Savannah 12-20.

1865—Jan. 31, 13th Amendment to Constitution, prohibiting slavery, passed by Congress and submitted to states for ratification. Becomes effective 12-18.

—April 9, Lee surrenders at Appomattox Courthouse, Va.; Johnson surrenders to Sherman 4-26; last Confederate army, under General Kirby Smith, surrenders at Shreveport, La., 5-26.

—April 14, Lincoln shot by John Wilkes Booth, dies next day.

1867—March 30, Alaska purchased from Russia for $7,200,000. Formally transferred to U. S. 10-18.

1868—June 23, first successful typewriter patented by Christopher L. Sholes.

—July 29, 14th Amendment to Constitution safeguarding civil rights declared in force.

1869—June 10, Wyoming Territory first state or territory to adopt woman suffrage.

1870—March 30, 15th Amendment to Constitution ratified. Vote is not to be denied by state for race, color, or previous condition of servitude.

1871—May 8, in Treaty of Washington, U. S. and Great Britain agree to arbitrate two disputes (including S. S. Alabama case), and refer a third to a joint commission.

1872—Sept. 14, Geneva Tribunal settles S. S. Alabama dispute (U. S. vs. Great Britain), in first great arbitration case.

1874—Oct. 9, International Postal Union formed among 55 nations, including U. S., for uniform handling of mail.

1876—March 17, telephone patented by Alexander Graham Bell.

1878—Feb. 19, phonograph patented by Thomas A. Edison.

1880—Jan. 27, incandescent electric lamp patented by Thomas A. Edison.

1882—March 1, U. S. joins International Red Cross (set up at Geneva Convention 8-8-64).

—May 24, Brooklyn Bridge opened.

1884—July 4, Bartholdi's Statue of Liberty given to U. S. by France. Unveiled Oct. 28, 1886.

—Aug. 26, linotype machine patented by Ottmar Mergenthaler.

1889—April 2, patent for electrolytic production of aluminum granted to Charles M. Hall.

—Oct. 2, first Pan-American Conference meets at Washington under President Benjamin Harrison, James G. Blaine serving as guiding genius. Pan-American Union set up.

1890—Pacific coast region, the westernmost territory in the U. S., was permanently settled, and the frontier was closed.

1892—Feb. 29, Bering Sea seal-fisheries dispute between U. S. and Great Britain referred to arbitration.

1893—March 14, motion-picture projector patented by Thomas A. Edison.

—May 1, opening of World's Columbian Exposition, Chicago.

1898—Spanish-American War, arising from insurrection of Cubans against Spain and growth of American sentiment against Spain. Important events: U. S. S. Maine blown up 2-15 in Havana Harbor, Cuba; Congress declares war 4-20; Spanish fleet defeated 5-1 at Manila by Dewey; Cuba blockaded; July, battles of El Caney, San Juan Hill, naval battle of Santiago; 7-25, Puerto Rico invaded; Manila captured 8-13. Treaty of Peace, signed at Paris 12-10, provides for withdrawal of Spain from Cuba, ceding to U. S. of Puerto Rico, Guam, and the Philippines, later paid for with $20,000,000.

—Aug. 12, Hawaii becomes U. S. territory.

1899—Dec. 2, acquisition of Pago Pago, Samoa, as naval base.

—May 18, first Hague Conference, U. S. delegates specifically instructed to work for an international court. Permanent Court of Arbitration set up 7-29. First decision, 10-14-02, settles U. S.-Mexico dispute.

—Sept. 6, U. S. declares Open Door policy for China.

1900—June 26, inauguration of campaign to wipe out yellow fever by Drs. Reed, Agramonte, Lazear, and Carroll.

1901—April, Permanent Court of Arbitration opens at The Hague. U. S. submitted first case—the Pious Fund case in 1902.

—May 1, Pan-American Exposition, Buffalo, N. Y.

—Sept. 14, Vice President Theodore Roosevelt, Republican, becomes President after assassination of William McKinley. Elected for full term Nov. 1904, defeating Judge Alton B. Parker, Democrat.

1902—May 20, inauguration of Cuban Republic.

1903—Jan. 1, first Pacific cable completed, San Francisco to Honolulu. Extension to Philippines opened 7-4.

—Jan. 20, President Theodore Roosevelt and King Edward VII exchange greetings via wireless telegraph.

—Dec. 17, Wilbur and Orville Wright demonstrate motor-driven airplane at Kitty Hawk, N. C.

1904—Oct. 27, first successful subway opened, New York City.

1906—Dec., President Theodore Roosevelt awarded Nobel peace prize for his settlement of Russo-Japanese War (Treaty of Portsmouth, N. H.). In accepting prize, he outlined plan for a league of nations to secure peace.

1907—June 15-Oct. 18, second Hague Peace Conference, called at suggestion of President Theodore Roosevelt in 1904, but postponed because of war in Far East. Conference set up voluntary international arbitration machinery, rules of war and rights of neutrals, debt-collection procedures, etc.

1908—Nov., William Howard Taft, Republican, elected President. Opposing candidate: William Jennings Bryan, Democrat.

1909—April 6, Robert E. Peary discovers North Pole.

—Dec. 7, Bakelite, first modern-type plastic, patented by Leo H. Baekeland.

1910—May 28-29, Congress votes resolution calling on President Taft to invite the nations of the world to create an international peace organization and form a police force of all the navies of the world.

—Sept. 7, Hague Court decides Newfoundland fisheries dispute between United States and Great Britain.

1911—Jan. 26, world's first hydroplane flight, by Glenn H. Curtiss at San Diego, Calif.

—March 1, first parachute landing from plane, 1,200-foot leap, by Capt. Albert Berry at St. Louis, Mo.

—Sept. 17-Nov. 1, first transcontinental airplane flight by C. P. Rogers.

1912—Nov., Woodrow Wilson, Democrat, elected President, defeating Theodore Roosevelt (Progressive) and William Howard Taft (Republican). Reelected, Nov. 1916, defeating Charles Evans Hughes (Republican).

—Dec., Elihu Root wins Nobel peace prize.

1913—Feb. 25, 16th Amendment to Constitution, authorizing income taxes, takes effect.

1913—*Continued*
—May 2, President Woodrow Wilson recognizes new Chinese Republic.
—May 31, 17th Amendment to Constitution, providing for popular election of senators, takes effect.
—Oct. 27, Wilson's Mobile Address promising "U. S. will never again seek one additional foot of territory by conquest."

1914—Aug. 15, Panama Canal is opened.
—Oct. 22, Commission for Belgian Relief set up with Herbert Hoover chairman. In next four years, 10,000,000 fed and cared for.

1915—Feb. 10, United States protests against German war-zone proclamation.
—May 7, S. S. Lusitania, British-owned, sunk by Germans, 1,195 lives lost, 128 Americans. *** President Wilson sends three notes of warning to Germany, 5-13, 6-9, 7-21.

1916—March 9, Columbus, New Mexico, raided by Pancho Villa. Pershing expedition into Mexico to prevent recurrence of such raids.
—April 17, American volunteers from Lafayette Escadrille to serve with French Army. (Becomes American unit in Feb. 1918.)
—April, President Wilson delivers fourth warning to Germany as a result of sinking of Sussex 3-24.
—May 14, Germany yields to the U. S. ultimatum (4-18) against unrestricted submarine warfare on freight and passenger vessels.
—Dec. 18, President in effort to find peace formula, asks belligerents to state war aims.

1917—Jan. 31, unrestricted submarine warfare renewed by Germany, violating agreement of 5-4-16.
—Feb. 3, diplomatic relations with Germany severed.
—March 16-17, three American ships sunk by German submarines, without warning.
—March 31, Danish West Indies (Virgin Is.) ceded to U. S. by Denmark for $25,000,000.
—April 2, President Wilson asks special session of Congress to recognize state of war between U. S. and Germany.
—April 6, U. S. declares war on Germany.
—May 18, Selective Service Act passed, providing for registration of men 21-31. Altogether, in three registrations, some 24,000,000 men registered, including over 13,000,000 in the registration 9-12-18 of men 18-48.
—June 26, first troops of U. S. Army disembark in France.

1918—Jan. 8, Fourteen Points set forth by President Wilson in address to Congress defining U. S. war aims.
—July 15, Battle of Château-Thierry, France. Germans stopped.
—July 18-Nov. 11, American troops participate in six assaults on German positions, two conducted wholly by American forces: Battle of Saint Mihiel (Sept. 12-16) and Battle of Meuse-Argonne (Sept. 26-Nov. 11), in which 1,200,000 men take part.
—Nov. 11, Armistice signed. War ends in complete Allied victory.
—Dec. 4, Woodrow Wilson, first President to leave Western Hemisphere while in office, arrives in Paris for the Peace Conference.

1919—June 28, Treaty of Versailles signed.
—Nov. 19, Senate rejects Treaty of Versailles 49-35 with reservations, after long controversy.
—Dec., President Woodrow Wilson awarded Nobel peace prize for Fourteen Points.

1920—Jan. 16, 18th (Prohibition) Amendment to Constitution takes effect. Repealed by 21st Amendment Dec. 5, 1933.
—Feb. 13, League of Nations appoints Elihu Root as one of ten to draft plan for Permanent Court of International Justice (World Court). Americans who have served as justices: Charles Evans Hughes (1929), Frank B. Kellogg (1930-35). Manley O. Hudson has served since 1936; the Court has not been dissolved. (Cf. 1-27-26.)
—Aug. 26, 19th Amendment to Constitution, providing for woman suffrage, ratified.
—Nov. 2, first general radio broadcast, covering Harding-Cox election returns, Station KDKA, Pittsburgh, Pa. Warren G. Harding, Republican, elected President. Opposing candidate, James M. Cox, Democrat.

1921—July 2, President Harding signs joint resolution by Congress terminating war with Germany, Austria, and Hungary.
—Nov. 12-Feb. 6, 1922, Washington Conference called by President Harding for naval limitation. Nine-power treaty, on rights in the Pacific; battleship ratios set at 5-5-3 for U. S., Great Britain, Japan; 1.75-1.75 for France and Italy.

1923—Aug. 3, Vice President Calvin Coolidge, Republican, becomes President after death of Harding. Elected for full term Nov. 1924; opposing candidate, John W. Davis, Democrat.
—Sept. 1, Japanese earthquake. Americans send 15,000,000 yen for relief.

1924—April 6-Sept. 28, first round-the-world flight, by 3 U. S. Army flyers; distance 26,103 miles, flying time 351 hours.
—Aug. 30, Dawes' Reparation Plan goes into effect.

1925—June 17, Arms Traffic Treaty signed by U. S. and other nations at Geneva. Also protocol banning poison gas.
—Dec., Charles G. Dawes wins Nobel peace prize for his plan for German reparations.

1926—Jan. 27, Senate votes U. S. adherence to World Court, but with certain reservations not acceptable to most member nations. Adherence requested by Presidents Harding and Coolidge, 1923; endorsed in principle in both Republican and Democratic platforms, presidential campaigns of 1924 and '32. (Cf. 1-16-35.)

1927—Jan. 7, commercial radiotelephone service opened, New York and London.
—May 20-21, Charles A. Lindbergh makes first solo flight across the Atlantic, from New York to Paris.

1928—July 6, first talking picture demonstrated in New York City.
—Aug. 27, Kellogg-Briand Pact of Paris signed, outlawing war as instrument of national policy, committing contracting parties to settlement of disputes by pacific means.
—Nov. 6, Herbert Hoover, Republican, elected President. Opposing candidate, Alfred E. Smith, Democrat.
—Nov. 19-Jan. 6, 1929, Hoover makes good-will tour through South America.

1929—Oct., stock-market crash, ushering in long financial depression.
—Nov. 29, Commander Byrd drops U. S. flag on South Pole.
—Dec., Frank B. Kellogg wins Nobel peace prize for his part in Pact of Paris, 1928, outlawing war.

1930—Jan. 21-April 22, London Naval Conference, outgrowth of conversations between Prime Minister MacDonald and President Hoover in Washington, results in 3-power treaty between U. S., Great Britain, Japan,

1930—*Continued*
providing for further reduction and limitation of naval might.

1931—July 1, Hoover moratorium on intergovernmental debts takes effect.

—Dec., Nobel peace prize awarded to Dr. Nicholas Murray Butler for work as president, Carnegie Endowment for International Peace; and to Jane Addams for work as president, Women's International League for Peace and Freedom.

1932—Jan. 7, Stimson Doctrine, announcing U. S. policy not to recognize "any situation, treaty, or agreement which may be brought about by means contrary to the covenants and obligations of the Pact of Paris," as protest against Japanese occupation of Manchuria.

—Feb. 2, at Japan's invitation, U. S. makes 5-point proposal for cessation of hostilities between Japan and China. Chinese accept, Japanese find objections.*** First General Conference for the Limitation and Reduction of Armaments assembles at Geneva. U. S. Ambassador Hugh Gibson asks members to abolish weapons devoted primarily to aggressive war 2-12. (Cf. 5-16-33.)

—July 18, U. S.-Canada sign treaty for development of St. Lawrence waterway and utilization of resulting water power.

—Nov. 8, Franklin D. Roosevelt, Democrat, elected President, opposing Herbert Hoover, Republican.

1933—Feb. 6, 20th ("Lame Duck") Amendment to Constitution adopted. President's and Vice President's terms of office to end Jan. 20, and senators' and representatives' Jan. 3, in years their terms expire.

—Feb. 25, Secretary of State Henry L. Stimson notifies League of Nations that U. S. is in "substantial accord" with findings of Lytton Commission on Manchuria.

—March 4, Franklin D. Roosevelt inaugurated 32nd President of the U. S. Telling nation "the only thing we have to fear is fear itself," he outlines program to put people to work, raise farm prices, control banking, and pursue "good neighbor" foreign policy.

—March 6, to prevent financial collapse, President declares brief bank holiday, closing banks and placing embargo on export of gold or its withdrawal from banks.

—March 9, Emergency Bank Relief Act, giving President power to control hoarding, gold, banks; approving his emergency bank measures.

—March 27, President creates Farm Credit Administration to provide agricultural credit system through long- and short-term loans. Series of Congressional acts set low interest rates and easy terms for farmers wishing to repay loans and clear homes; authorize crop loans for planting and harvesting in worst depression years. (Cf. 5-12, 6-16, 2-23-34, 6-12-34, 6-28-34, 7-29-37.)*

—May 12, Agricultural Adjustment Act, for raising farm-produce prices by control of production through compensation to farmers for crop curtailment. Production control provisions of this act declared unconstitutional 1-6-36. Laws were later enacted for control, through soil conservation, etc., of crops and crop prices. (Cf. 3-1-36, 2-16-38). * * * Emergency Farm Mortgage Act. (Cf. 3-27.) * * * $500,000,000 Emergency Relief Act. Total payments to individual beneficiaries of work-relief program to 6-30-41 over $22,300,000,000. Chief agencies involved: Federal Emergency Relief Administration (FERA); Civilian Conservation Corps (CCC), which furnished employment to nearly 2,500,000 needy young men; Civil Works Administration (CWA) of 1933-34, for work relief; Works Progress Administration (WPA), created 5-6-35, which at peak employed more than 3,000,000 individuals; National Youth Administration (NYA), created 6-26-35, for training and useful employment of young people.

—May 16, President Roosevelt makes specific proposals to Geneva Conference (Cf. 2-2-32) for "complete elimination of all offensive weapons." Germany insists on re-arming; withdraws from Conference 10-14-33.

—May 18, Tennessee Valley Authority (TVA) created to rehabilitate Valley region in 7 Southern states through flood control, improvement of navigation, reforestation, reclamation of farm lands, and development of power.

—May 27, Securities Act, for registration of securities to protect public. Followed by creation of Securities and Exchange Commission 6-6-34, to control securities exchanges and listed securities; Public Utility Holding Company Act 8-26-35, to regulate and simplify such structures and, after 1-1-38, to dissolve those judged unnecessary; lastly, three acts for control of trust institutions, investment companies, investment advisers.

—June 13, Home Owners' Loan Act. This and later laws provide for refinancing mortgages of urban home owners threatened with foreclosure. $3,093,451,321 loaned to 1,077,827 home owners, 1933-36. ***World Monetary and Economic Conference, London.

—June 16, Banking Act. This and later laws provide for insuring bank deposits up to $5,000 and creation of Federal Deposit Insurance Corporation (FDIC). ***Farm Credit Act. (Cf. 3-27-33.)***National Industrial Recovery Act, permitting industry-wide codes to eliminate wasteful competition, maintain wages, hours, and employment, and protecting workers' right to organize. Authorizes Public Works Administration (PWA), which by January 1940 financed 34,468 construction projects involving more than $5,900,000,000 outlay. NIRA declared unconstitutional 5-27-35; PWA unaffected. (Cf. National Labor Relations Board, 6-29-34; Fair Labor Standards Act, 6-25-38.)

—Nov 9, President creates Civil Works Administration (CWA). (Cf. 5-12-33.)

—Nov. 16, diplomatic relations with Russia established. (Formal relations with Russia lapsed Nov. 1917.) (Cf. 7-14-35.)

—Dec. 3, Seventh International Conference of American States, at Montevideo, unanimously adopts resolution supported by Secretary Hull, stating, among other things, that "no nation has the right to intervene in the external or internal affairs of another" and providing for commissions to conciliate differences between American republics. (Cf. 12-1-36.)

—Dec. 5, ratification of 21st Amendment to Constitution, repealing 18th (Prohibition) Amendment.

—Dec. 21, President ratifies London silver stabilization agreement and provides for coining by U. S. of newly mined domestic silver. (Cf. 6-19-34.)

1934—Jan. 30, Gold Reserve Act, authorizing President to revalue dollar down to 50 cents of its gold content, and setting up $2,000,000,000 stabilization fund.

* More detail has been supplied from this point on to meet the needs of outpost men who want background material for current events and have not the sources at hand.

1934—*Continued*

—Feb. 2, President creates Export-Import Bank to aid in financing international trade.

—Feb. 15, Civil Works Emergency Relief Act. (Cf. 5-12-33.)

—Feb. 23, Crop Loan Act. (Cf. 3-27-33.)

—March 24, Tydings-McDuffie Act passed by Congress, providing for Philippine independence after 10-year transitional commonwealth government with Philippine Chief Executive.

—March 27, Vinson Naval Act, authorizing construction of 102 ships to bring Navy up to London Treaty strength by 1939.

—April 21, Cotton Control Act, placing cotton under AAA. (Cf. 5-12-33.)

—May 31, Senate ratifies treaty abrogating Platt Amendment (which permitted U. S. intervention in Cuba) giving complete independence to Cuba.

—June 6, Securities Exchange Act. (Cf. 5-27-33.)

—June 12, Reciprocal Tariff Act, authorizing President to negotiate reciprocal trade agreements and to raise or lower tariffs by not more than 50 percent. Renewed in 1937, in 1940, and again in 1943. ***Farm Mortgage Foreclosure Act. (Cf. 3-27-33.)

—June 15, Senate ratifies Geneva Convention for supervision of international trade in arms.

—June 16, Bank Deposit Insurance Act. (Cf. 6-16-33.)

—June 18, Indian Reorganization Act, giving 380,000 Indians and Eskimos in U. S. and Alaska added protection, aid for rehabilitation, and a Magna Charta for self-government.

—June 19, Communications Act, creating Federal Communications Commission (FCC) for regulating interstate and foreign telephone, telegraph, cable, and radio. ***Silver Purchase Act, for "naturalization" of silver and its purchase by U. S.

—June 21, Railway Labor Act. This and later laws provide for settlement of railroad and air-carrier labor disputes, and insure employees freedom to organize. National Mediation Board created to administer act.

—June 27, Railway Pension Act, providing retirement system for railway employees. Later declared unconstitutional, replaced by act creating Railway Retirement Board 8-29-35. ***National Housing Act sets up agency to insure loans for better housing, enabling low-income families to own homes, keep them in repair. (Cf. 9-1-37.)

—June 28, Tobacco Control Act, putting tobacco under AAA. (Cf. 5-12-33.) ***Frazier-Lemke Farm Bankruptcy Act. (Cf. 3-27-33.) Declared unconstitutional, but essential provisions reenacted 8-28-35. ***Taylor Grazing Act, to protect 142 million acres of federal grazing lands and improve grazing practices; homesteading virtually ends.

—June 29, President Roosevelt appoints first National Labor Relations Board (under Public Resolution 44), to handle labor relations and protect workers' right to organize. After NIRA is declared unconstitutional 5-27-35, NLRB reestablished. (Cf. 7-5-35.)

—June 30, President creates National Resources Board to plan best use of nation's resources. Succeeded by National Resources Committee 6-7-35, then by National Resources Planning Board 7-1-39. (Congress did not reappropriate funds for this board at the end of the 1942-43 fiscal year.)

—Dec. 19, London naval disarmament conversations end in failure. Japan denounces Washington Naval Limitations Treaty of 1921. (Cf. 3-25-36.)

1935—Jan. 5, Nellie Ross, first woman governor, inaugurated Governor of Wyoming.

—Jan. 16, President urges U. S. adherence to World Court, after Senate reservations (Cf. 1-27-26) had been provided for in revised Court protocol. Measure fails, by 7 votes, to pass Senate, 1-29.

—Feb. 22, Connally Oil Act, permitting President to regulate oil and natural gas industry in interstate commerce.

—March 23, congratulatory statement by President on certification of Philippine Constitution.

—April 8, $4,880,000,000 Work Relief Act. (Cf. 5-12-33.)

—April 30, President Roosevelt creates Resettlement Administration for soil conservation, and relief of low-income farmers. (RA was later transferred to the Department of Agriculture and called the Farm Security Administration.)

—April 27, first Soil Conservation and Domestic Allotment Act, which later served to replace that part of the AAA which was declared unconstitutional. (Cf. 1-6-36.)

—May 6, President creates Works Progress Administration (WPA). (Cf. 5-12-33.)

—May 11, President creates Rural Electrification Administration to electrify rural communities. REA transferred to Department of Agriculture 7-1-39.

—May 17, addressing American delegation to International Labor Conference at Geneva (to meet June 4), President commends plan for international hours-and-wages regulation.

—May 27, Supreme Court declares NIRA unconstitutional. (Cf. 6-16-33.)

—June 26, President creates National Youth Administration. (Cf. 5-12-33.)

—July 5, National Labor Relations Act (Wagner Act), guaranteeing employees' right to organize. New National Labor Relations Board set up to administer its provisions. (Cf. 6-29-34.)

—July 14, Ambassador Bullitt and Foreign Commissar Litvinov, in Moscow, sign one-year trade agreement between U. S. and U. S. S. R. Agreement renewed annually until 8-4-43, when it was renewed until such time as either government gives six months' notice.

—Aug. 14, Social Security Act, providing for old-age and unemployment insurance; aid to needy aged, dependent children, and the blind; programs for maternal and child welfare, vocational training, health.

—Aug. 26, Public Utility Holding Company Act. (Cf. 5-27-33.)

—Aug. 29, Railroad Retirement Act. This and later laws provide for retirement pensions for railway, express-company, and sleeping-car employees along Social Security Act lines. (Cf. 8-14.)

—Aug. 30, Guffey Bituminous Coal Act, to regulate soft-coal industry. Declared unconstitutional 5-18-36, reenacted with changes 4-26-37. ***Law levying increased taxes on large individual incomes, corporation earnings, inheritances, and gifts.

—Aug. 31, President signs Joint Resolution of Neutrality, requiring munitions makers, exporters, importers to be licensed; controlling arms exports; discouraging travel by Americans on ships of belligerents. (Cf. 2-29-36.)

—Sept. 31, President dedicates completed Boulder Dam.

1935—*Continued*
—Oct. 2, President, in San Diego address: "This country seeks no conquest. We have no imperial designs —our national determination to keep free of foreign wars and foreign entanglements cannot prevent us from feeling deep concern when ideals and principles that we cherish are challenged....Our flag for a century and a half has been the symbol of the principles of liberty of conscience, of religious freedom, and equality before the law."
—Oct. 5, President prohibits arms exports to Italy and Ethiopia, which became involved in war 10-2. Secretary Hull, 9-12, had urged peaceful settlement of their differences under Kellogg-Briand pact.
—Nov. 18, Economic sanctions against Italy in which U. S. joined. Ended 7-15-36.
—Nov. 24, John L. Lewis and his Committee for Industrial Organization withdraw from the American Federation of Labor.

1936—Jan. 6, Supreme Court declares production control provisions of AAA unconstitutional. (Cf. 5-12-33.) Replaced by Soil Conservation and Domestic Allotment Act 2-29-36, new AAA 2-16-38.
—Feb. 29, Neutrality Resolution renewed, extended to ban loans (with certain exceptions) to belligerents. (Cf. 5-1-37.)
—March 1, Soil Conservation and Domestic Allotment Act. This and later laws, replacing old AAA, provide system of compensation for crop control through conservation methods. (Cf. 2-16-38.)
—March 25, Anglo-French-American Naval Treaty signed in London, for qualitative (but not quantitative) limitation of naval construction. Ratified unanimously by Senate 5-18. (Cf. 12-31.)
—June 22, $1,425,000,000 Emergency Relief Appropriation Act, chiefly for WPA. $790,000,000 additional appropriated 2-9-37. (Cf. 5-12-33.)
—June 29, Merchant Marine Act, creating the U. S. Maritime Commission, and subsequent laws, under which commission begins constructing 50 merchant vessels a year and subsidizing American shipowners and operators.
—June 30, Walsh-Healy Act, defining work week and wage rates on government contracts.
—Nov. 3, Franklin D. Roosevelt re-elected President; opposing candidate, Alfred M. Landon, Republican.
—Dec. 1, Inter-American Conference for the Maintenance of Peace, at Buenos Aires, attended by President. Democratic form of constitutional government, he says, offers "peace and a more abundant life to the peoples of the whole world." Conference unanimously adopts solidarity resolution, providing that unfriendly act toward any American republic would be considered dangerous to all. (Cf. 12-24-38.)
—Dec. 31, Washington and London naval-limitation treaties expire; Japan unwilling to become party to new agreements. Naval building race between great powers starts.

1937—Feb. 5, President Roosevelt asks Congress for power to appoint judges in federal courts where incumbents continue on bench after reaching retirement age. After long controversy revolving around Supreme Court, bill is defeated.
—April 26, new Bituminous Coal Act. (Cf. 8-30-35.)
—May 1, Neutrality Resolution renewed, with added "cash and carry" provisions for transfer of title to munitions before shipment abroad, and outright ban on travel by Americans on ships of belligerents. (Cf. 11-4-39.)
—July 29, Bankhead-Jones Farm Tenant Act takes effect. (Cf. 3-27-33.)
—Aug. 30, act providing for unemployment census.
—Sept. 1, U. S. Housing Act and later laws creating the U. S. Housing Authority, to provide 160,000 new homes for 640,000 slum-dwellers, through loans of $800,000,000. (Cf. 6-27-34.)
—Oct. 5, President, in Chicago address, suggests quarantine of aggressor nations. Excerpts: "The peace, the freedom, and the security of 90 percent of the population of the world is being jeopardized by the remaining 10 percent who are threatening a breakdown of all international order...It seems to be unfortunately true that the epidemic of world lawlessness is spreading. When an epidemic of physical disease starts to spread, the community approves and joins in a quarantine of the patients in order to protect the health of the community."
—Oct. 6, State Department formally condemns Japan for aggression in China.
—Nov. 3, Brussels conference opens under nine-power treaty, to consider Japan-China "incident." U. S. Ambassador Norman H. Davis urges peaceful solution, Italians warn against interference. Japan twice refuses to exchange views, conference adjourns 11-24.
—Dec. 12, Japanese shell and sink U. S. gunboat Panay and several American oil carriers. Japan apologizes and makes reparation.

1938—Feb. 16, new Agricultural Adjustment Act. (Cf. 5-12-33.)
—June 25, Fair Labor Standards Act (wage-hour law): providing for eventual adoption of 40-hour week, with minimum-wage rates and abolition of child labor in interstate commerce. (Cf. 2-3-41.)
—Sept. 26, President Roosevelt appeals for peace directly to Hitler and President Benes of Czechoslovakia.
—Dec. 24, Declaration of Lima, adopted by 21 American nations at Pan-American Conference, warns against foreign intervention, provides for consultation if security is menaced. (Cf. 10-3-39.)

1939—Jan. 12, President asks $525,000,000 for defense, including Pacific and Caribbean fortifications.
—April 14, President Roosevelt asks Hitler and Mussolini for 10-year guaranty of peace.
—April 30, New York World's Fair is opened.
—June, King and Queen of England visit U. S.
—July 26, Secretary of State Hull notifies Japanese Ambassador of U. S. intention to abrogate commercial treaty of 1911.
—Sept. 5, U. S. asserts neutrality as war breaks out in Europe. (Poland invaded 9-1; Great Britain declares state of war with Germany 9-3.)
—Sept. 8, President proclaims limited national emergency.
—Oct. 3, Declaration of Panama, joint effort of American republics to maintain neturality, signed. (Cf. 7-29-40.)
—Nov. 4, revised Neutrality Act, repealing arms embargo, becomes effective. (Cf. 11-17-41.)

1940—March 30, Secretary of State Hull says U. S. will continue to recognize in China only Chiang Kai-shek's government at Chungking.
—May 16, President asks joint session of Congress for appropriation of $1,182,000,000 for speeding urgent defenses.
—May 28, President appoints National Defense Advisory Commission.

1940—*Continued*

—June 10, Italy invades France; President Roosevelt, at Charlottesville, Va., denounces Italy for attack on France.

—June 17, Senate declares U. S. will refuse to recognize change of title from one European power to another of "any geographic region in the Western Hemisphere." Two days later U. S. cautions Germany and Italy to keep hands off British, French, Dutch possessions in Western Hemisphere. (House adopts similar resolution 4-1-41.)

—June 22, Congress adopts national defense tax bill, designed to yield $994,300,000 a year to defray cost of defense program

—July 1, President signs bill rushing naval construction and three other bills to speed national defense.

—July 5, Secretary Hull reaffirms American determination to sustain Monroe Doctrine.

—July 20, $4,000,000,000 "two ocean" Navy authorized.

—July 29, Havana Conference ends with Act of Havana, providing for "provisional administration" in certain contingencies of areas in Western Hemisphere in danger of seizure by European powers. (Cf. 1-15-42.)

—Aug. 28, President signs bill authorizing mobilization of National Guard, other Army reserves for one year's active service.

—Sept. 2, agreement whereby Britain in return for 50 U. S. destroyers gives U. S. 99-year lease on Atlantic base sites in British territories.

—Sept. 14, Congress passes Compulsory Military Service bill, men 21-35 liable to selection, signed 9-16 by the President, 10-16 set as registration day. (Cf. 12-19-41.)

—Sept. 27, Japan, Germany, and Italy sign tripartite pact aimed directly at U. S.

—Oct. 29, drawing of first draft numbers for first peacetime selective service in U. S. history.

—Nov. 5, Franklin D. Roosevelt elected President for third term, first time in U. S. history. Opposing candidate, Wendell L. Willkie, Republican.

—Dec. 2, President signs bill expanding the 1918 Espionage Act to make sabotage a federal offense even in peacetime.

—Dec. 29, in radio address, President declares: "We must be the great arsenal of democracy. . . . We must apply ourselves to our task with the same resolution, the same sense of urgency, the same spirit of patriotism and sacrifice as we would show were we at war."

1941—Jan. 6, President Roosevelt, in message to Congress, says we look forward to world founded on four freedoms: freedom of speech and religion, freedom from fear and want. Defines national policy as "full support of resolute peoples everywhere who are resisting aggression."

—Feb. 3, Supreme Court upholds federal Fair Labor Standards Act (wage-hour law), reversing 1918 ruling which denied power of Congress to outlaw child labor.

—Feb. 19, House passes bill for $213,139,500 to expand naval bases in Pacific, Alaska, and Canal Zone, and to complete Atlantic bases leased from Britain.*** Excavation work started for third set of locks, Panama Canal.

—March 11, President signs Lend-Lease Act providing for two-way transfer of goods and services between U. S. and friendly nations.

—March 15, in world-wide broadcast, President Roosevelt declares aid to "embattled" democracies will be "increased and yet increased until total victory has been won."

—April 7, President signs $4,389,284,174 appropriations bill carrying funds for 4,750 new warplanes and equipment for Army of 4,000,000.

—April 11, Danish minister to U. S. signs agreement permitting U. S. to establish Greenland bases.

—May 20, President sets up Office of Civilian Defense.

—May 23, Congress grants power to impose priorities on American industry in interest of national defense. President signs bill 6-2.

—May 27, President proclaims unlimited national emergency.

—May 31, Secretary of State Hull writes foreign minister of China that U. S. will move to relinquish extraterritorial rights in China when peace is again restored.

—June 16, U. S. requests German consuls to leave because of "improper and unwarranted" activities.

—July 7, President announces that U. S. has occupied Iceland by agreement with Danish government.

—July 26, General Douglas MacArthur placed in command of all armed forces, both Philippine and U. S., in Philippines.

—July 30, U. S. recognizes Czechoslovak government-in-exile at London.

—Aug. 14, announcement of historic meeting of President Roosevelt and Prime Minister Churchill "at sea" and of joint declaration of mutual aims for better world future—the 8-point Atlantic Charter.

—Sept. 11, in world-wide broadcast, inspired by sinkings of American merchant ships by "rattlesnakes of the Atlantic," President Roosevelt warns that German and Italian submarines found in American defense waters will be fired upon.

—Sept. 24, U. S. and British missions arrive in Moscow to discuss war supplies for Russia.

—Nov. 17, President approves amendments to Neutrality Act, opening way for U. S. merchant ships to go through combat zones with arms for anti-Axis nations.

—Nov. 24, Free French announce U. S. extending lend-lease to Free French in Africa and Syria.***U. S. announces occupation of Dutch Guiana (Surinam) in agreement with The Netherlands and Brazil.

—Nov. 26, Secretary of State Hull presents Japan's two envoys, Kurusu and Nomura, with U. S. terms—based on principles already enunciated—for settling differences in Asia and the Pacific.

—Dec. 7, Pearl Harbor, Hawaiian Islands, attacked without warning by Japan about 7:55 A.M. Honolulu time. American fleet sustains heavy damages. British lose Repulse and Prince of Wales December 10. United Nations land and sea forces in Pacific undertake delaying action until they can attack the enemy in strength.

—Dec. 8, Congress passes joint resolution declaring state of war with Japan.

—Dec. 11, Germany and Italy declare war on U. S. President Roosevelt sends message to Congress, which declares state of war between U. S. and Germany, U. S. and Italy.***President proclaims establishment of 8 defensive sea areas, closed to non-government shipping except in daylight and under naval or other authorized supervision.***French ships in American ports, including 83,420-ton Normandie, taken over by U. S., owners to be paid price agreed on later.

—Dec. 15, President reports U. S. lend-lease aid since March 1941 totals $1,202,000,000 in goods and services.

—Dec. 16, Congress grants President virtually unlimited power to control defense contracts and alien property, and to reorganize government agencies.

1941—*Continued*

—Dec. 18, U. S. reports agreement maintaining status of French possessions in Caribbean, continuing trade in exchange for pledge that no activities detrimental to U. S. will be permitted by high commissioner at Martinique.

—Dec. 19, Congress expands Selective Service Act, advancing draft age to 45, authorizing registration of all males 18 to 64. (Cf. 11-12-42.)

—Dec. 20, Chinese Army's American Volunteer Group (Flying Tigers), meet 10 Japanese planes in first action, shoot down 4 without any losses. (Cf. 7-4-42.)

—Dec. 22, Prime Minister Churchill arrives at White House. Coordination of U. S.-British war effort announced 1-26-42.

—Dec. 23, Wake Island falls.

1942—Jan. 1, subscribing to the Atlantic Charter, all 26 nations at war with one or more aggressor powers sign pledge, as the United Nations, to employ full military, economic resources in war, not to make separate armistice or peace. Declaration signed in Washington, D. C. (Cf. 5-29.)

—Jan. 2, General MacArthur regroups forces on Bataan Peninsula, Luzon, after Japanese take over Manila and Cavite. Siege of Bataan starts 1-6. Corregidor fortress still holds despite fierce enemy attacks.

—Jan. 3, British, U. S., Dutch, and Dominion forces in Southwest Pacific—land, sea, air—unified under Britain's General Wavell.

—Jan. 6, President Roosevelt announces production goals of 60,000 planes, 45,000 tanks, 20,000 anti-aircraft guns, and 8,000,000 deadweight tons of merchant ships in 1942. (Cf. 3-4-43.)

—Jan. 7, President Roosevelt sends Congress proposed annual budget for over $58,000,000,000, more than $52,000,000,000 to be solely for war.

—Jan. 12, President creates National War Labor Board of 12 members.

—Jan. 15-28, Pan-American Conference at Rio de Janeiro. Delegates from all 21 republics recommend severing diplomatic relations with Japan, Germany, Italy, many having done so already. (By February of 1943 the total is 20, all but Argentina.)

—Jan. 16, President establishes War Production Board.

—Feb. 23, Japanese submarine shells California beach north of Santa Barbara, causing no damage.

—Feb. 24, U. S. forces wreck installations on Wake Island.

—Feb. 27, naval battle of Java Sea begins, U. S. and Allied fleets forced to retire. Java invaded, falls 3-9, U. S. airmen escape.

—Feb. 28, Navy announces 44,900 tons of Japanese shipping sunk by U. S. submarines on "enemy's front doorstep," in war of attrition against shipping lanes. More than 100 ships sunk by submarines alone by 12-19.***U. S. recognizes Free French control in New Caledonia and other French island possessions in Pacific; joint defense agreed upon 3-2, U. S. troops arrive 4-25.

—March 3, U. S. establishes military zone on West Coast, about 250,000 square miles barred to Japanese in U. S.

—March 4, U. S. planes attack Japanese-fortified Marcus Islands, destroying planes and bases.

—March 10, Lieut. Gen. Joseph W. Stilwell, U. S. Army, made Chinese Army chief of staff under Generalissimo Chiang Kai-shek. Placed in command of China's Fifth and Sixth Armies 3-19, five weeks after fall of Singapore 2-15. (Cf. 3-17.) Slow, stubborn, British-Chinese retreat in Burma enables U. S. mission to keep Burma Road open to traffic, despite loss of Rangoon, until 4-29.

—March 11, President Roosevelt reports $1,363,000,000 lend-lease aid for preceding 3-month period. Total aid from beginning (March 1941): $2,570,000,000.

—March 16, U. S. Army air and ground troops land in Australia.

—March 17, ordered from Philippines, General MacArthur arrives in Australia; Maj. Gen. Jonathan Wainwright succeeds him as American commander on Luzon. ***National debt limit raised by Congress from $65,000,000,000 to $130,000,000,000. ***Lieut. Gen. Stilwell put in command of U. S. Army forces in China, Burma, India theater of operations.

—March 21, U. S. signs agreement for financial aid to China.

—March 26, Admiral Ernest J. King, commander in chief of U. S. Fleet, takes oath as chief of naval operations. ***Manuel Quezon, President of the Commonwealth of the Philippines, members of his cabinet, join General MacArthur in Australia.

—March 28, Col. Louis Johnson made President Roosevelt's personal representative in India, to suggest ways U. S. can help augment India's war potentialities.

—March 30, Pacific War Council established in Washington.

—April 4, U. S. recognizes Free French control of French Equatorial Africa and French Cameroons.

—April 8, President authorizes General Wainwright to continue to fight, or make terms, as he sees fit. On short rations since 1-11, Bataan surrenders 4-9. Corregidor holds out another month, until 5-6. American forces on Mindanao capitulate 5-10.

—April 18, Brig. Gen. James H. Doolittle, squadron of U. S. bombers raid Japan, bombing objectives in or near Tokyo, Yokohama, Kobe, Nagoya.

—April 20, resolution similar to that offered by Wendell L. Willkie, adopted by Republican National Committee. Demands relentless prosecution of offensive war, with no appeasement or compromise. Postwar clause: "We realize that after this war the responsibility of the nation will not be circumscribed within the territorial limits of the United States; that our nation has an obligation to assist in bringing about understanding, comity, and cooperation among the nations of the world in order that our own liberty may be preserved and the blighting and destructive processes of war may not again be forced upon us and upon the free and peace-loving peoples of the earth."

—April 28, prices of essential goods in U. S. frozen at March 15 levels; rent ceilings set in certain areas by Office of Price Administration.

—May 4-9, U. S. naval and air forces rout Japanese fleet in battle of Coral Sea.

—May 7, U. S. and Australian bombers attack Japanese naval forces on Bougainville (occupied 1-23), in Solomon Islands.

—May 12, President Quezon of Philippines, and family, arrive in Washington.

—May 29, Russian Foreign Commissar Viacheslav M. Molotov arrives in Washington, for war talks. (Cf. 6-11.) ***Mexican Chamber of Deputies declares war on Germany, Italy, Japan as of 5-22, Senate approves, President Camacho signs 6-9. Becomes 27th country to join United Nations, 6-5. (Cf. 6-10.)

—June 3, Japanese planes make first raid on North American soil, bombing U. S. air and naval base of Dutch Harbor, in Unalaska, one of Aleutian Islands.

1942—*Continued*

—June 4, U. S. forces take heavy toll of Japanese fleet as enemy attacks Midway Island.

—June 10, Philippines 28th country to join United Nations. (Cf. 8-22.)

—June 11, U. S. announces understanding with Russia and Britain on creation of second front in 1942. U. S. and Russia sign master lend-lease agreement.

—June 17, U. S. bombers based in Egypt, launching series of raids in Middle East, attack Italian battleships. (Cf. 10-8.)

—June 27, International Wheat Agreement for cooperation in postwar distribution signed in Washington by U. S., Canada, Argentina, Australia, and Great Britain.

—June 28, arrest announced of 8 German saboteurs who landed on Long Island and Florida. Six electrocuted 8-8 after conviction by special military commission and Supreme Court opinion upholding method of trial.

—July 4, Chinese Armys American Volunteer Group (Flying Tigers) disbands, having shot down 284 Japanese planes. Many flyers transfer to U. S. Army's Twenty-third Pursuit Group.

—Aug. 2, lone German plane attacks post in southern Iceland.

—Aug. 7, U. S. Marines land in Guadalcanal as start of offensive action.

—Aug. 16, U. S. Army fighter squadrons join Canadians and British in sweep over France.

—Aug. 17, in first all-U. S. bombing operation against Nazis, Flying Fortresses bomb objectives in Rouen, Dunkirk, Cherbourg. Eight more raids follow, with no U. S. losses. Then, 9-6, three squadrons bomb aircraft factory at Méaulte, 2 Fortresses are downed.

—Aug. 19, Commando raid on Dieppe, France, with U. S. battalion of Rangers taking part—first U. S. forces on continental European soil in this war.

—Aug. 20, Navy announces that U. S. Marines have invaded three islands in the Solomons: Tulagi, Florida, Guadalcanal. (Cf. 2-9-43.)

—Aug. 22, Brazil, first in South America to do so, declares war on Germany and Italy, and becomes ally of the United Nations. (Cf. 10-9.)

—Aug. 31, American Red Cross reports on relief operations first 3 years of war. $60,000,000 worth of supplies sent to aid 20,000,000 war victims.

—Sept. 2, Assistant Secretary of War John J. McCloy says 500,000 American fighting men and technicians are stationed abroad. ***Secretary of Navy Frank Knox reports decided drop in U-boat sinkings off U. S. Atlantic Coast, but warns that battle against submarines is not yet won.

—Sept. 7, U. S. marks Labor Day with launching of 174 warships, keel-laying of 49. ***With Ecuador's consent, U. S. troops move into bases on west coast of Ecuador and in the Galapagos Islands as part of hemisphere defense.

—Sept. 10, British invade Madagascar, with U. S. approval. Vichy French governor general signs armistice 11-5.

—Sept. 23, Joseph N. Teal, 10,500-ton Liberty ship, launched 10 days after keel is laid; ship delivered 4 days later. (Cf. 11-12.)

—Sept. 29, Australian and American forces repel Japanese near Port Moresby, New Guinea. (Enemy invaded New Guinea 1-23.) ***Royal Air Force's 3 Eagle Squadrons transfer to 8th U. S. Air Force. (The fighter Squadrons, composed of Americans who volunteered for service with the British in Oct. 1940, saw first action in Feb. 1941, 10 months before U. S. entered war.)

—Oct. 1, President returns to White House after 8,754-mile trip through 24 states, inspecting war-production plants.

—Oct. 3, President signs anti-inflation bill, names Supreme Court Justice James F. Byrnes director, Office of Economic Stabilization. (Cf. 5-28-43.) ***U. S. troops aided by U. S.-Canadian navies occupy Andrean Island in the Aleutians as base for attack on Japanese-occupied Kiska and Attu.

—Oct. 8, Maj. Gen. Russell L. Maxwell, commanding U. S. forces in the Middle East, reports that American bombers carried out 90 missions in 110 days from June through September, dropped 1,580 tons of bombs, and sank or damaged 37 ships at a loss of only 19 planes. ***Manufacture of spirituous liquors suspended for duration, distillers going into war production.

—Oct. 9, Ethiopia becomes 29th country to join United Nations. (Cf. 1-16-43.)

—Oct. 12, Attorney General Biddle announces in Columbus Day address that Justice Department no longer classifies 600,000 Italian aliens in U. S. as enemy aliens.

—Oct. 16, Budget Bureau estimates U. S. will spend $74,000,000,000 solely for war purposes in fiscal year ending June 30, 1943.

—Oct. 20, Congress enacts largest tax bill in U. S. history, to yield close to $9,000,000,000.

—Oct. 23, Mrs. Franklin D. Roosevelt arrives in London to study work of women in the war.

—Oct. 25-29, U. S. forces on Guadalcanal repel Japanese offensive, cripple Japanese fleet.

—Oct. 26, U. S. bombers attack Hong Kong (occupied by Japanese since 12-25-41).

—Oct. 29, Allied troops drive Japanese from important position in Owen Stanley Mountains, New Guinea.*** U. S. Army Engineers complete last mile of 1,691-mile Alaska Highway, linking U. S. and Alaska.

—Oct. 31, General George C. Marshall congratulates U. S. Navy for transporting 800,000 American troops overseas safely.

—Nov. 7, powerful British and U. S. forces commanded by Lieut. Gen. Dwight D. Eisenhower land simultaneously in French Morocco and Algiers from 850 American and British ships in greatest amphibian operation in history. Urged to cooperate with Allies to liberate France, Algiers agrees immediately. Oran and Casablanca surrender to U. S. forces Nov. 10 and 11, Allied drive proceeds toward enemy beachheads in Tunisia. ***In the Pacific, fresh U. S. troops are flown to New Guinea, island's whole eastern peninsula except Buna-Gona beachhead again in Allied hands.

—Nov. 10, President Roosevelt announces U. S. armed forces (Army, Navy, Marines, Coast Guard) will total about 9,700,000 by end of 1943. (Cf. 6-14-43.)

—Nov. 11, General Eisenhower urges Vichy-French Navy at Toulon to join Allies. Germans close harbor, French scuttle fleet, 11-27.

—Nov. 12, age for Selective Service lowered to 18.*** Henry J. Kaiser breaks own record by launching 10,500-ton Liberty ship Robert E. Peary, 4 days 15½ hours after keel is laid.

1942—*Continued*

—Nov. 13, American forces bombard Japanese positions on Guadalcanal, shoot down 30 of 31 Jap planes. ***In San Francisco, 4,000-ton ship launched in 3⅓ days.

—Nov. 15, French in Tunisia fighting German and Italian forces as U. S. and British cross border from Algeria. All Tunisia under Allied control by 11-20, except Bizerte region, Tunis.

—Nov. 13-15, U. S. Navy wins decisive victory in naval battle of Guadalcanal. Japanese losses: 28 ships, 20,000 to 40,000 men.

—Nov. 21, Herbert H. Lehman, governor of New York, appointed U. S. director Office of Foreign Relief and Rehabilitation Operations. Wartime duties: to distribute food, clothing, supplies to peoples of liberated countries. (OFRRO transferred to Foreign Economic Administration on 9-25-43. See page 20.)

—Nov. 23, French West Africa joins Allies.

—Dec. 7, Maj. Gen. Alexander A. Vandegrift, U. S. Marine commander on Guadalcanal, announces about 6,640 Japanese killed on land and more than 456 Japanese planes downed by U. S. fighters since the Marines landed early in August. Japanese troop losses exceed Americans' by more than 10 to 1 and air losses by about 7 to 1.

—Dec. 10, Australian Prime Minister Curtin announces Australian and U. S. troops captured Japanese-occupied Gona in New Guinea.

—Dec. 11, President Roosevelt says that one million men will be in armed forces overseas by end of 1942. Units now stationed at 65 points outside continental U. S.

—Dec. 14, Allied troops, mostly American, occupy Buna Village on northeastern New Guinea coast.

—Dec. 16, shipyard report for November shows 56-day average building time for Liberty ships, from keel-laying to delivery—one-quarter the time required in Jan. 1942. Merchant-ship deliveries of all types passed an average of 1 a day in April, 2 a day in June, 3 a day in Sept., and reached 4 a day in Dec. 1942.

—Dec. 24, Admiral Jean François Darlan, High Commissioner of French North and West Africa, assassinated. * * * Two days later General Henri Honoré Giraud elected French High Commissioner in Africa.

—Dec. 28, Vice President Wallace calls for international postwar cooperation, states that "there must be machinery for preventing economic warfare," including an international court and a world council.

—Dec. 31, Navy announces two submarines return to U. S. bases after sinking 109,000 tons of shipping in the Pacific.

1943—Jan. 5, in North Africa, activation of U. S. 5th Army under Lieutenant General Mark W. Clark is announced. (Cf. 2-5.)

—Jan. 7, President Roosevelt, in his annual "state of the nation" message to the 78th Congress, reports 1½ million Americans in service overseas.

—Jan. 11, U. S., Britain, relinquish extraterritorial and other special rights in China; U. S. ratifies treaty 2-11.

—Jan. 14-24, President Roosevelt and Prime Minister Churchill, accompanied by key military officials of both governments, meet in Casablanca, French Morocco, determine that only unconditional surrender of enemy can end war. Premier Stalin and Generalissimo Chiang are kept informed of discussions. General Henri Honoré Giraud, French African high commissioner, and General Charles de Gaulle, Fighting French commander, also meet and confer. On way home, President stops at Monrovia, Liberia, for talk with President Edwin J. Barclay, and following day confers with President Getulio D. Vargas of Brazil, aboard U. S. destroyer near Natal.

—Jan. 15, Navy has more than 1 million men on duty. ***WPB reports U. S. spent $52,406,000,000 for war production in 1942; $6,125,000,000 of this in December, 1942.

—Jan. 16, Iraq declares war on Germany, Italy, Japan; first independent Moslem nation to do so; 30th country to join United Nations. (Cf. 2-8.) ***Lieutenant General William N. Haskell named field operations director of Office of Foreign Relief and Rehabilitation Operations; Francis B. Sayre, former high commissioner to Philippines, named deputy director. (OFRRO transferred to Foreign Economic Administration 9-25. See page 20.)

—Jan. 17, Wayne L. Morse, public member of the National War Labor Board, reports that board decided 514 cases, involving 2,500,000 workers, in 1942.

—Jan. 19, Australian troops, supported by Americans, take Sanananda Point, wiping out last organized Japanese resistance in Papua, New Guinea.

—Jan. 20, Chile severs diplomatic relations with Germany, Italy, Japan. ***Prentiss M. Brown replaces Leon Henderson as Price Administrator.

—Jan. 21, Navy announces that most of the Marines who had seized Guadalcanal Island in the Solomons and held it since August have been relieved by Army forces under Major General Alexander M. Patch. (Cf. 2-9)

—Jan. 25, report of Lend-Lease Administrator to Congress on operations from inception of program to 1-1-43 reveals U. S. aid has totaled $8,253,000,000—$3,960,000,000 to United Kingdom, $2,393,000,00 to other Empire territories, $1,532,000,000 to U.S.S.R., $156,000,000 to China. Military items totaled $3,709,000,000, industrial materials $1,571,000,000, agricultural products $1,268,000,000, services rendered $1,705,000,000. U. S. has received major assistance ("lend-lease in reverse") from United Kingdom, Australia, New Zealand; also from New Caledonia (Fighting French), Belgian Congo, China, South Africa. Addition of Ethiopia and Liberia brings total of countries eligible for lend-lease to 37, plus British Commonwealth. Lend-lease master agreements (with Belgium, China, Czechoslovakia, Greece, Netherlands, Norway, Poland, U.S.S.R., United Kingdom, Yugoslavia) provide, among other things, for: reciprocal lend-lease, possible return of lend-lease goods after war, final settlement of obligations so as to promote economic objectives of Atlantic Charter. (Cf. 3-2.)

—Feb. 2, War Manpower Commission announces that men between 18 and 38 in 36 non-essential industries may lose draft deferment for dependency, beginning 4-1.

—Feb. 5-15, Lieutenant General Dwight D. Eisenhower made a full general, appointed commander in chief Allied forces in North African theater. Lieutenant General Frank M. Andrews succeeds Eisenhower as commander U. S. forces in European theater (now exclusive of North Africa). Major General Lewis Hyde Brereton succeeds Andrews as commander U. S. forces in Middle East. Major General Carl A. Spaatz named deputy chief of staff Allied air forces in North Africa. Major General Ira C. Eaker commands Eighth U. S. Air Force (England). Major General

1943—Feb. 5-15—*Continued*
James H. Doolittle commands Twelfth U. S. Air Force (North Africa).

—Feb. 8, Brazil signs Declaration of United Nations; 31st country to join. (Cf. 4-8.)

—Feb. 9, organized Japanese resistance ends on Guadalcanal Island of Solomons group. ***President orders 48-hour week for all full-time workers in labor-shortage areas. WMC chairman Paul V. McNutt puts order into effect in 32 cities.

—Feb. 10, Peru declares adherence to principles of Atlantic Charter; Venezuela follows suit few days later.

—Feb. 11, announcement that conferences have been concluded by high British and American officers—including Lieutenant Generals Henry H. Arnold (commander of U. S. Army Air Forces) and Joseph W. Stilwell (commander of field forces in China)—in China with Generalissimo Chiang, and in India with Field Marshall Sir Archibald P. Wavell.

—Feb. 13, U. S. Marine Corps opens ranks to women between 20 and 50; Women's Reserve headed by Major Ruth Cheney Streeter. (Promoted to Lt. Col. in November.)

—Feb. 15, Wiley Blount Rutledge, Jr., is sworn in as Associate Justice of the Supreme Court which reaches its legal membership of nine for the first time since James F. Byrnes resigned October 3.

—Feb. 18, Mme. Chiang Kai-shek, first private citizen to address Congress, stresses the primary importance to America of defeating Japan. ***Lend-Lease Administrator Edward R. Stettinius, Jr., creates China Division in Lend-Lease Administration under J. Franklin Ray, Jr. ***Henry L. Stimson, U. S. Secretary of War, announces establishment of U. S. Sixth Army in Australia and New Guinea.

—Feb. 19, President Roosevelt pledges that the United States will rush additional military matériel to China. Edward R. Stettinius, Jr., Lend-Lease Administrator, reports that the U. S. has shipped more than 2,900,000 tons of war supplies to Russia.

—Feb. 22, Archbishop Francis J. Spellman of New York is received in private audience by Pope Pius XII in Vatican City.

—Feb. 26, Americans reoccupy vital Kasserine Pass in Tunisia . ***Under Secretary of State Sumner Welles, in a speech in Toronto, Canada, pleads for an immediate start to work out postwar economic problems, and to plan for freedom from want after the fighting ceases. ***The Royal Air Force and the U. S. Army Air Forces in the North African Theater are merged under the command of Major General Carl A. Spaatz, U. S. Army. They are to be known as the Northwest African Air Force.

—Feb. 27, regulations are issued by the War Manpower Commission to implement the 48-hour week in 32 areas. ***A statement published in London, based mainly on German announcements places the total number of executions by the Nazis at 3,400,000 with Poland heading the list with 2,500,000.

—March 1, point rationing of canned, dried, frozen, and dehydrated fruits, vegetables, and soups begins. Secretary of Agriculture Claude R. Wickard announces the establishment of an Agricultural Labor Administration to recruit 3,500,000 volunteer farm workers.

—March 2, a lend-lease agreement between the United States and Chile is signed at Washington. (Cf. 4-18.)

—March 2-4, Battle of Bismarck Sea in which a Japanese convoy of 12 transports and 10 cruisers and destroyers is annihilated by Allied bombers.

—March 4, Edward R. Stettinius, Jr., reports that $295,501,494 worth of lend-lease goods has been sent to India since March 11, 1941. ***Under Secretary of War Robert P. Patterson reports that 5,500 planes were produced in February. January war production included 5,000 planes, 3,250 of which were combat types; 70,000 aircraft bombs of 1,000 pounds or larger; 58,000 carbines; 27,000 50-caliber aircraft machine guns; 7,000 20-mm. aircraft cannon; and 68,000 submachine guns.

—March 5, Secretary of the Navy Knox announces that naval shipbuilding and aircraft production reached a new high in February. This included 150 combat vessels, 700 landing barges, and 1,400 planes.*** The Maritime Commission reports that 130 merchantmen have been completed, totaling 1,239,200 deadweight tons. Secretary Knox discloses the production of a new vessel to combat U-boats, known as the "DE" or Destroyer Escort.

—March 8, Acting Secretary of State Sumner Welles reports that U. S. has shipped no food to Martinique since November 8 when U. S. forces landed in North Africa.

—March 10, President Roosevelt transmits to Congress a report of the National Resources Planning Board, embodying a plan for a postwar America, called "National Resources Development—Report for 1943," with an exhaustive supporting technical document on "Security, Work, and Relief Policies."

—March 11, President Roosevelt promotes Major General George S. Patton, Jr., Commander of 1st Armored Corps in North Africa and Major General Carl A. Spaatz, Commander of the U. S. Air Force in Northwest Africa, to temporary rank of Lieutenant General. (Senate approves 3-12.) *** Edward R. Stettinius, Jr., Lend-Lease Administrator, reports to Congress on two years' aid ending February 28, totaling $9,632,000,000. Lend-Lease and direct purchase shipments in 1942 took 30 percent of U. S. bomber production, 38 percent of all fighting planes, 33 percent of all medium tanks, and 28 percent of light tanks. Half the tanks and 40 percent of the tactical planes went to Russia, which received 29 percent of all aid.

—March 13, U. S. Navy Department announces that in the six naval and air battles in the Solomons, the Japanese lost 64 ships sunk, 10 probably sunk, and 108 damaged in a total of 182 since August 7, 1942—as against 32 U. S. ships lost, five damaged, and two overdue and presumed lost—a total of 39. The Japanese losses include 40 warships, two battleships, 12 cruisers, and 26 destroyers, while the U. S. Navy lost two aircraft carriers, four heavy cruisers, three light cruisers, and thirteen destroyers. One destroyer and one submarine are unaccounted for.

—March 14, General Giraud reports that there are 50,000 French soldiers in Tunisia and that deliveries of equipment for an army of 300,000 men are arriving from the United States.

—March 18, Americans take Gafsa in Tunisia; General Eisenhower announces that Lieutenant General George S. Patton has replaced Major General Lloyd R. Fredendall as commander of the American Army Corps in Central Tunisia. ***John Foster Dulles, chairman of a commission established by the Federal Council of the Churches of Christ in America, outlines a statement of

1943—March 18—*Continued*
political principles based on six pillars of peace: 1, political cooperation among the United Nations; 2, economic cooperation; 3, an international organization to guide international relations; 4, an organization to bring autonomy to subject peoples; 5, a rigid armament control; 6, religious and intellectual freedom.

—March 19, Americans take El Guettar in Tunisia. ***Jesse Jones reports that national income in 1942 rose 26 percent to $119,800,000,000 and national production increased 27 percent to $151,600,000,000. Consumers' expenditures amounted to 82 billion dollars. ***The Senate unanimously confirms President Roosevelt's nomination of Lieutenant General Henry H. Arnold, 56, Army Air Forces Commander, for promotion to the temporary rank of full general, the first flyer to win such rank.

—March 20, Secretary of Commerce Jesse Jones announces that 1,022 war-plant projects of the 1,479 owned by the government's Defense Plant Corporation are now in operation.

—March 21, British Eighth Army, having reached Tunisia, pushes on toward northwest against Mareth Line.

—March 22, the Bureau of Census reports that the population of the continental United States increased 1.2 percent in 1942 to total 135,604,000, as compared with 133,669,275 in 1941.

—March 23, President Roosevelt accepts the resignation of Brigadier General Patrick J. Hurley as Minister to New Zealand and names him as his personal representative in the Near and Middle East war theaters. ***The Navy Department announces the establishment of a West African Sea Frontier Force with a naval operating base at Casablanca, French Morocco, both commanded by Rear Admiral John L. Hall, Jr.

—March 24, Major General Ira C. Eaker, Eighth U. S. Army Air Force commander, tells correspondents in London that the Force shot down 356 enemy planes since July with a loss of 90 bombers and that 80 German planes were destroyed, 29 probably destroyed, and 32 damaged during U. S. raids on Vegesack, March 18, and Wilhelmshaven, March 22. He states that the period of experimentation has passed and that the Force will assume full partnership with the RAF by midsummer when it will bomb Axis targets by night as well as by day.

—March 26, President Roosevelt appoints Chester C. Davis, 55, president of the Federal Reserve Bank of the St. Louis district, as War Food Administrator to serve in the Department of Agriculture under Secretary Claude R. Wickard, who had been Food Administrator since December 5. Davis will administer the department's food production and distribution activities, the recruitment of farm labor transferred by the War Manpower Commission, and the Agricultural Adjustment Administration. (Cf. 6-28-43.) ***President Roosevelt nominates John K. Caldwell, 61, of Berea, Kentucky, to serve as U. S. Consul General and Minister Resident to Ethiopia. ***Major General Levin H. Campbell, Jr., Chief of Ordnance, reports in Washington that the Army is now using a new short-range anti-tank gun, called a "bazooka" by the troops, which is built on the rocket-gun principle, can be carried and fired by a single man, and "can destroy any enemy tank on the battlefield today."

—March 29, British Eighth Army cracks Mareth Line. ***More than 2,600 Japanese-American volunteers leave Hawaii to train at Camp Shelby, Hattiesburg, Miss., after ceremonies in Honolulu on 3-28 attended by nearly 20,000 persons.

—March 31, the Combined Shipping Adjustment Board discloses in Washington that the 1943 goal in merchant ship construction, 18,900,800 deadweight tons as compared with 8,090,000 tons completed in 1942, will place the world's largest merchant marine at the disposal of the United Nations.

—April 7, U. S. and British Eighth Army units meet 15 miles east of El Guettar.

—April 8, U. S. Director of Foreign Relief and Rehabilitation Herbert H. Lehman arrives in London to investigate relief needs of Axis-occupied countries. ***President Roosevelt, in a comprehensive "hold the line" order designed to check inflation, stabilizes wages and prices, prohibits employment changes involving higher wages unless the war effort is aided thereby, and bars rate increases to common carriers and public utilities. ***Bolivia declares war on the Axis. (32nd to sign Declaration of United Nations 4-27. Iran, 33rd nation, signs 9-14.) ***U. S. and Iran sign 3-year reciprocal trade agreement providing for tariff reductions.

—April 10, British Eighth Army charges through Sfax, second largest city in Tunisia.

—April 12, British Eighth Army, on way to Tunis, takes Sousse.

—April 15, the Allies reorganize the air forces in the East. Lieutenant General Carl A. Spaatz is chief in Africa.

—April 16, the U. S. War Department announces that 6 Army Air Forces bombardment groups have shot down 558 planes to date. ***Secretary of the Navy Knox reports in Washington that the Navy has 7 fleets in service as compared with 3 at the beginning of the war.

—April 17, Major General Clayton L. Bissell, U. S. 10th Air Force commander, declares in New Delhi that U. S. bombings have rendered the port of Rangoon practically useless. ***War Manpower Commission Chairman McNutt freezes 27,000,000 government, railroad, farm, and industrial workers in their jobs, implementing the President's "hold the line" order.

—April 18, Lieutenant General Spaatz says his Northwest African Air Force has secured supremacy of the air since March 20, shooting down 519 Axis planes at a loss of 175 and destroying or damaging nearly 1,000 planes on the ground. ***President Roosevelt authorizes extension of lend-lease aid to Saudi Arabia. (Cf. 6-8.)

—April 19, the Bermuda Refugee Conference opens in Hamilton.

—April 20, the War Department reveals that the aircraft carrier U. S. S. Hornet was the "Shangri-la" for Doolittle's Tokyo raid. All but one of the sixteen bombers crashed, 64 of 80 men returned.

—April 21, President Roosevelt announces "the execution by the Japanese government of some of the members of this country's armed forces." These were some of the captured airmen who participated in the raid over Tokyo on April 18, 1942.

—April 23, Navy reveals U. S. holds Funafuti, largest of the Ellice Islands. Secretary of the Navy Knox says U. S. troops have been there "for some time and have established a small base."

—April 30, the Second War Loan drive passes its $13,000,000,000 goal. ***Japanese launch submarine attack in waters east of Australia.

1943—*Continued*

—May 3, American troops driving eastward toward Bizerte, capture Mateur.

—May 4, Free French troops, having pushed north from Lake Chad since November 1942, meet American forces at a point some 10 miles outside of Bizerte.

—May 7, Tunis and Bizerte captured by Allies.

—May 11, U. S. forces land on the island of Attu in the Aleutians. ***President Roosevelt announces that U. S. production of airplanes measured by weight now exceeds that of all other nations combined. ***Prime Minister Winston Churchill arrives in Washington for his fifth war conference with President Roosevelt.

—May 12, war in North Africa over as Allied North African Headquarters announces that organized Axis resistance, except for isolated pockets, has ceased; enemy at Cape Bon surrenders.

—May 15, a force of U. S. Army heavy bombers attacks Japanese installations on Wake Island.

—May 18, United Nations Food Conference opens in Hot Springs with 45 nations represented. *** Mohne and Eder Dams in Ruhr, Germany, heavily bombed.

—May 25, Lend-Lease supplies to French forces in North Africa in April amounted to 60 million dollars, Lend-Lease Administrator Stettinius reports. Total aid through April 30 was 75 million dollars.

—May 28, President Roosevelt sets up Office of War Mobilization with James F. Byrnes as director to unify all war agencies.

—June 1, organized resistance on Attu in the Aleutians ends. ***U. S. and Mexico sign agreement to extend 1941 currency-stabilization pacts until June 30, 1945.

—June 2, Lend-Lease Administrator Stettinius reports that lend-lease exports in the first four months of 1943 totaled $1,350,200, nearly all of which went to United Kingdom and Russia.

—June 8, U. S. and Liberia sign lend-lease agreement.

—June 10, Roosevelt signs pay-as-you-go tax bill making wage and salary earners, starting July 1, subject to a 20 percent withholding tax, including Victory tax.

—June 11, Pantelleria, Italian island in the Strait of Sicily, surrendered after being attacked by Allied planes and warships for 20 consecutive days.

—June 12, Italian island of Lampedusa, 85 miles southeast of Pantelleria, surrenders after being attacked by Allied planes and warships for more than 24 hours.

—June 13, small Italian island of Linosa, 25 miles north of Lampedusa, surrenders. ***U. S. Ambassador John G. Winant says at London meeting that more than 2,000,000 U. S. troops have been sent to overseas combat zones since the war began.

—June 14, War Manpower Commission Chairman McNutt testifies that armed forces will total 9,200,000 by June 30 as against 10,900,000 planned for December 31, 1943. (Cf. 7-15.)

—June 16, Secretary of the Treasury Henry Morgenthau, Jr., tells his press conference that the Treasury has revised its goal for new 1944 taxes from 16 billion dollars to 12 billion dollars. Government income would then total about 50 billion dollars, or half of all estimated war expenditures.

—June 19, Lend-Lease Administrator Stettinius reports April lend-lease shipments totaled 839 million dollars, 363 million dollars of which went to the United Kingdom and 233 million dollars to Russia. May lend-lease aid transferred was worth 790 million dollars raising the total to $11,893,000,000.

—June 24, President Roosevelt nominates Ray Atherton, Minister to Denmark, to be Minister to Canada and the exiled Luxembourg Government; William C. Burdett to be Minister to New Zealand; and Loy W. Henderson as Minister to Iraq.

—June 25, Congress overrides President Roosevelt's antistrike bill veto and passes Smith-Connally War Labor Dispute Act.

—June 27, President Roosevelt signs record naval bill carrying $27,637,226 in appropriations.

—June 28, President Roosevelt names Judge Marvin Jones, former Texas congressman and chairman of the United Nations Food Conference, to replace Chester C. Davis as War Food Administrator.

—June 30, in combined and coordinated operations the forces of the South and Southwest Pacific occupy Nassau Bay on north coast of New Guinea. U. S. Navy announces that U. S. combined forces landed on Rendova Island in the central Solomons. Rendova is five miles south of Munda, Japanese base which is major objective of drive. Allied forces occupy the Trobriand Islands and Woodlark Island without opposition. ***WPA goes out of existence. Since its inception in 1935 it employed 8,500,000 persons and spent $10,500,000,000.

—July 1, U. S. forces take Rendova Island. *** Secretary of the Treasury Morgenthau announces extension of monetary stabilization agreements with Cuba and Ecuador. *** Allied force lands at Viru Harbor on New Georgia Island.

—July 2, President Roosevelt signs the bill to make the Women's Army Auxiliary Corps a part of the Army. ***Occupation of Viru Harbor completed.

—July 3, OWI reports 91,644 U. S. war casualties—16,696 killed, 21,828 wounded, 31,579 missing, and 21,541 prisoners.

—July 4, U. S. troops land on Vangunu Island, southeast of New Georgia, capturing its principal town of Vura.

—July 6, five Japanese destroyers and four light cruisers sunk or beached in Kula Gulf naval battle off northwest New Georgia. U.S.S. cruiser Helena sunk.

—July 7, General Henri Giraud, French commander in Northwest Africa and co-chairman of French Committee of National Liberation, arrives in Washington to confer with President Roosevelt and military leaders. ***President Roosevelt says in a report to Congress on Red Cross foreign relief operations that supplies valued at $74,861,810 were distributed among more than 32,500,000 persons in more than 30 countries from July 1, 1940 to April 30, 1943.

—July 8, both Houses of Congress adjourn until September 14, 1943. ***The American Iron and Steel Institute reports that steel production in the first half of 1943 was a record 43,866,912 tons.

—July 5, joint British-U. S. communiqué reports that Allied and neutral shipping losses from U-boat action in June were the lowest since the U. S. entered the war, while losses from all forms of enemy action were the second lowest of the war. ***Fred K. Hoehler, Director of Foreign Relief and Rehabilitation Operations for North Africa, reports in New York that food and clothing have been sold at cost to 84,000 persons in Tunisia and that 7,000 political refugees have been employed by Allied armies.

—July 10, U. S., British, and Canadian troops under General Eisenhower's command land in southeastern Sicily. Heavy aerial assaults on Sicilian airfields and military bases preceded the invasion. Shortly after

1943—July 10—*Continued*
midnight main landings from the sea began; strong forces of the British fleet, aided by U. S., Dutch, Polish, and Greek warships, bombarded the coast as troops swarmed ashore at many beaches and landing places extending over a distance of 100 miles. More than 2,000 warships, transports, supply ships, and landing vessels took part in the greatest armada in history. British Eighth Army captures Syracuse, important port of Sicily. ***U. S. forces from Nassau Bay advancing inland join with Australian units at Buigap Creek severing the Mubo-Salamaua road. ***Navy Department announces that more than 6,000 ships, totaling 1,000,000 tons, and 9,000 planes were placed in service in the first half of 1943; the 1942 edition of "Jane's Fighting Ships," published in London, says that the U. S. Navy now leads the world in battleships with 21 in service or due to be commissioned soon as against 19 for Great Britain.

—July 13, British troops occupy the Sicilian port of Augusta 13 miles northwest of Syracuse. ***U. S. State Department announces that Admiral Georges Robert has terminated his regime in Martinique and that Henri-Etienne Hoppenot, representing the French Committee of National Liberation, has been recognized as Governor General. It says that food shipments to the island will be resumed.

—July 14, President Roosevelt signs the omnibus war veterans' bill increasing compensation for widows and children of men in the fighting forces killed in action.

—July 15, Allied troops capture Mubo, Japanese base southwest of Salamaua, New Guinea. President Roosevelt issues an executive order abolishing Vice President Wallace's Board of Economic Warfare and transferring its functions, together with certain subsidiaries of Jesse Jones's Reconstruction Finance Corp., to an Office of Economic Warfare headed by Alien Property Custodian Leo T. Crowley. ***Major Emett Solomon of the Selective Service Manpower Division discloses that there are now 9,300,000 men and women in uniform and that the number will reach 10,800,000 by January and 11,300,000 by July, 1944.

—July 16, President Roosevelt and Prime Minister Churchill deliver an ultimatum to the Italian people, calling on them to decide "whether Italians shall die for Mussolini and Hitler—or live for Italy and for civilization." As message is broadcast, Allied planes drop millions of copies on Italian soil. ***President Roosevelt signs the bill extending the Commodity Credit Corporation until January 1, 1944.

—July 17, General Eisenhower, Allied Commander, names General Sir Harold Alexander head of the Allied Military Government of Occupied Territories (AMG) in Sicily. ***Department of State discloses that an Office of Foreign Economic Coordination, headed by Assistant Secretary of State Dean Acheson, was established June 24 on orders received June 3 from President Roosevelt. It will coordinate the economic operations of U. S. civilian agencies in areas liberated from enemy control. (The functions of this office, too, have been taken over by the Foreign Economic Administration as of 9-25.) ***Details of broad agreements by President Roosevelt and Mexican President Camacho at their meetings last April are made public. Mexico will continue production of strategic war materials for the U. S. and will receive American aid, continuing in postwar period, for agriculture, transportation, power, and general industrial development.

—July 17, a Puerto Rican committee submits an independence bill to Washington asking an eight-year "commonwealth" period and U. S. guarantee to import 1,000,000 tons of sugar annually for 20 years.

—July 18, General Sir Harold Alexander, military governor of occupied Sicily, bans the Fascist Party, annuls all discriminatory laws based on race, color, or creed, and suspends the power of the Italian crown. Lt. Col. Charles Poletti has been named senior civic affairs officer of the Allied Military Government of Occupied Territories (AMG).

—July 19, about 500 Allied planes, most of them American, bomb military objectives in Rome for the first time, blasting railroad yards and airports east and south of the city's center. ***U. S. Liberators bombed Paramushiru, Japanese naval and air base in the northern Kurile Islands, for the first time. The Island is 700 miles west of Attu. ***Petroleum Administrator Ickes dedicates the "Big Inch" pipeline from Longview, Texas, to Phoenixville, Pennsylvania, which will be linked with lines to Bayonne, New Jersey, and Marcus Hook, Pennsylvania, and supply the eastern seaboard with 300,000 barrels of oil daily.

—July 20, Enna, in Sicily, captured by Allied troops.

—July 21, U. S. troops in Sicily capture Castelvetrano and four other towns, while Canadian troops take Rammacca. ***The War Department discloses that 65,058 Axis prisoners are interned in the U. S.—45,355 Germans, 19,641 Italians, and 62 Japanese. They are in 38 camps in 20 states.

—July 22, Allied bombers from Australia, in nearly 2,400 mile flight, bomb Java for first time since its occupation by Japanese. ***U. S. Seventh Army units capture Palermo, capital and principal port of Sicily.

—July 24, U. S. Liberators attack Japanese-held Wake Island.

—July 25, the Rome radio announces that King Victor Emmanuel III has accepted the resignation of Premier Benito Mussolini and appointed Marshal Pietro Badoglio as head of the government, Premier, and State Secretary.

—July 28, Rome radio announces that the new Italian cabinet ordered the complete dissolution of the National Fascist Party and abolished the Fascist Grand Council and the special Fascist tribunals for national defense.

—July 29, a message to the Italian people from General Eisenhower, offering immediate peace, is broadcast from Algiers. ***The Navy announces that its Women's Reserve will be increased from its present enrollment of 27,000 to 91,000 by the end of 1944.

—July 30, President Roosevelt warns neutral nations not to provide refuge for "Mussolini and his Fascist gang" and asserts that "war criminals" will be tried and punished.

* * *

On the map, the Northeast, the South, and the West are subdivided into a total of 20 numbered parts. These represent physical "provinces," or regions in each of which the relief features of the land are more or less uniform in character (the numbers designating these provinces are entered in brackets in the chapter on geography). The Middle West is not so subdivided because its land surface is much less diversified than that of the three other sections. Wide black lines on the map divide the U. S. into 4 main sections, thin black lines divide it into the 20 numbered parts mentioned above, and dots represent boundaries of states.

GEOGRAPHY

The land area of the continental United States is 2,977,128 square miles, the population approximately 135 million, and the average density of population about 45 persons to the square mile. The population, however, is unevenly distributed among the four geographical sections into which the country is frequently divided: The *Northeast* (163,702 sq. mi.; density, 220 per sq. mi.); the *Middle West* (450,276 sq. mi.; density, 80 per sq. mi.); the *South* (879,828 sq. mi.; density, 47 per sq. mi.); and the *West* (1,483,322 sq. mi.; density, 12 per sq. mi.). Each of these sections differs substantially from the others in physical characteristics, history, economic life, and culture. The Northeast is predominantly industrial; the Middle West both agricultural and industrial; the South predominantly agricultural; and in the West, farming, grazing, and mining are in the lead. The boundaries of the sections as shown on the accompanying map are somewhat arbitrarily drawn, for in reality the sections merge into one another.

On the map, the Northeast, the South, and the West are subdivided into a total of 20 numbered parts. These represent physical "provinces" or regions in each of which the relief features of the land are more or less uniform in character. (The numbers designating these provinces are entered in brackets in the following paragraphs.) The Middle West, however, is not so subdivided because, by and large, its land surface is much less diversified than that of the three other sections. It should be noted that the boundary between the Northeast and the South cuts across what are in fact four major continuous physical divisions of the country.

THE NORTHEAST

Of the five principal physical provinces of the Northeast, only the *Atlantic Coastal Plain* [1] and the *Erie-Ontario Lowland* [5] are extensive plains. The *New England Province* [2] which includes not only the New England states but the outlying Adirondacks [2a] and a projection southwestward is a region of hills, low mountains (highest, Mt. Washington, N. H., 6,293 feet), and lesser lowlands, in which the general trend of the relief is northeast-southwest. The *Appalachian Plateaus* [4] have for the most part been deeply dissected into a rugged terrain of steep-sided valleys and sharp ridges. The *Great Appalachian Valley* [3], a trough composed of narrow valleys alternating with parallel ridges, contains, to the north, Lake Champlain and the Hudson Valley (north of Newburgh, N. Y.). With the deep Mohawk Valley, which connects it with the Ontario lowland, this trough forms the principal low-level route between the Atlantic coast and the interior of the continent. North of the latitude of New York City the entire Northeast has been glaciated and is dotted with lakes, ponds, and swamps.

The climate is continental—uniform in type but varied in detail. Since the prevailing winds are offshore, the modifying influence of the sea is confined to the coast. Hence the winters are more severe and the summers considerably warmer only a short distance inland than they are on the seashore. In the north, although the summers are warm, lakes and streams are frozen for 3 or 4 months each year. Southern Pennsylvania has hot summers and cold but seldom very severe winters. Precipitation is ample and ordinarily well distributed throughout the year, everywhere falling as snow during the coldest months.

The original vegetation of the extreme northern part of this section, and of its mountain ridges elsewhere, was a coniferous forest of spruce and fir. The southern and central parts were clothed with hardwoods. Owing to lumbering and the clearing of the land, the native stands of trees have been almost completely replaced by inferior woodlands, which today are widespread even in the more densely populated areas.

Although the Northeast embraces only 6 percent of the land area of the continental United States, it supports about 28 percent of the population. The density of population, some 220 to the square mile, is by far the highest of the four sections. The people, however, are concentrated within certain limited areas and large parts of northern Maine and northeastern New York are virtually uninhabited. The people are for the most part city dwellers, the majority clustering along the seaboard southwestward from Boston to Wilmington, in the Hudson-Mohawk and Connecticut valleys, in the Lake Ontario lowland, and about the coal fields of Pennsylvania.

This section's preeminence in industry is shown by the fact that more than 40 percent of the nation's wage earners engaged in manufacturing live here. The manufactures are diversified, including certain heavy industries (steel, glass, concrete, etc.), the processing of raw materials (oil, sugar, copper, etc.) for export or import, and the making of articles that either require skilled labor (e.g., watches, typewriters, tools, etc.) or are best produced near the markets (clothing, furniture, perishable goods, etc.). The dense population and manufacturing have given rise to a huge flow of commerce both within the section and through its ports.

Except for the enormous bituminous coal fields of western Pennsylvania and the anthracite fields of the northeastern part of that state (the largest in the world), the section is poor in mineral resources. Besides coal, raw products needed in manufactures occur in limited quantities though in considerable variety. Building materials include the marbles and granites of Vermont and the basic materials for concrete in northeastern Pennsylvania and elsewhere. The forests, formerly far more important, supply only a small part of the demand for pulpwood and lumber. The fisheries, both along and off the coast, provide fresh sea food and fish for canning, drying, smoking, etc., and for the manufacture of fish oil and fertilizer.

Owing to the rough topography, mediocre or poor soils, and short growing season, this section as a whole is less productive agriculturally than other parts of the country. Accessibility to the great urban markets, however, has given rise in favorable localities to the intensive development of specialties such as dairying, truck gardening, poultry raising, orcharding, and tobacco growing.

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THE MIDDLE WEST

Unlike the Northeast, which is largely rugged with a few "islands" of low, flat land, the Middle West is a great rolling plain with a few "islands" of rougher topography. It is nearly the size of the British Isles, France, Germany, Belgium, The Netherlands, Denmark, Switzerland, Austria, and Czechoslovakia combined, although it now maintains only about 18 percent as many people. North of the Ohio and Missouri rivers the debris left by the continental ice sheets has produced a varied rolling topography and thousands of lakes, small ponds, and swamps give character to the landscape. The low relief, navigable rivers and Great Lakes, and low passes through the eastern uplands by way of the St. Lawrence and Hudson-Mohawk depressions, permit easy access to the Atlantic. Similarly, low relief and the Mississippi River with its tributaries provide equally easy access to the Gulf of Mexico. Through these gateways the products of this section move to the markets of the eastern United States and Europe.

The climate is continental, with hot summers, cold winters, and adequate precipitation for agricultural purposes. Weather changes are frequent and sudden. Although the mean annual rainfall decreases westward from 40 inches in eastern Ohio to approximately 20 inches along the western margin of the section, the proportion of rain that falls during the spring and early summer increases, thus extending the productive area far to the west. Winter precipitation falls largely in the form of snow. The growing season varies from 190 days in the south to 100 days in the north, permitting the cultivation of a great variety of agricultural products.

The original vegetation was characterized by: 1, the coniferous forests of northern Minnesota, Wisconsin, and Michigan; 2, the tall-grass prairies of the eastern Dakotas, Nebraska, and Kansas, which once extended eastward across southern Minnesota, Iowa, northern Missouri, and Illinois to western Indiana; and 3, the hardwood forests of central Minnesota, southern Wisconsin and Michigan, Indiana, Ohio, and southern Missouri and Illinois. So rich is the soil and so extensive the agricultural development that little or none of the original prairie sod remains today, and in the hardwood forest areas the trees have been cut to the point where only scattered farm wood lots remain. With their inferior soils, the coniferous forest lands have generally reverted to second-growth woodland after lumbering.

The Middle West comprises somewhat more than 15 percent of the total land area and about 27 percent of the people of the United States. The population density, approximately 80 to the square mile, is about a third that of the Northeast, but the population is more evenly distributed. Nevertheless, even in this dominantly agricultural section, somewhat more than half of the people are classed as urban. The location of cities has been notably influenced by lines of communication, as along the margins of the Great Lakes and at important river and rail junctions.

The economic character of the Middle West as a whole is the product of its agriculture, for which this section has greater advantages than any other region of like size in the world. A variety of crops, predominantly cereals, is produced, and the fertile soils, broad expanses of level land, labor supply, and available markets favor extensive rather than intensive farming. Winter wheat and corn are raised in the south, corn and livestock in the center, forage crops in association with a great dairy industry in the north and northeast, and spring wheat in the northwest.

The Middle West also has notable mineral wealth, which has stimulated its industrial growth and has furnished the tools, machinery, and power for its development into the greatest area of machine farming in the world. Besides the Appalachian coal field near its eastern margin, the Illinois-Indiana bituminous field produces nearly 20 percent of the nation's total supply. Oil is found in southeastern Illinois and southwestern Indiana, in northern Indiana and Ohio, and in Michigan, and the gas from these fields serves the adjacent industrial areas. Around the western end of Lake Superior lie the hematite deposits which supply the bulk of the iron ore mined in North America. Copper is produced in the upper peninsula of Michigan, and the world's most important lead district is in southeastern Missouri.

The Middle West is second only to the Northeast in manufacturing. Its industries may be classified as follows: 1, the basic production of raw iron and steel around the southern ends of the Great Lakes, where the iron ore of the Lake Superior region, transported by water, meets the coal of the Appalachian and Illinois fields and is economically smelted; 2, the many associated manufactures that use steel as a chief raw material, above all the giant automobile industry, the world center of which lies in this region; 3, the industries that transform agricultural products on their way to eastern or foreign markets (e.g., the flour and other cereal mills at Minneapolis, Chicago, Battle Creek, etc.; the meat-packing plants at St. Paul, Milwaukee, and Chicago; the milk condenseries and cheese factories of Wisconsin, and the vegetable and fruit canneries of the entire region); 4, the industries that were formerly dependent on the diverse forest products readily available but are now forced to draw much of their raw materials from elsewhere.

THE SOUTH

On the accompanying map the South is divided into the seven following physical provinces, three of which [6, 11, 12], it will be seen, are broken each into two segments by the Mississippi Flood Plain [7]. 1. The *Atlantic and Gulf Costal Plain* [6] is flanked along its seaward margins by a cordon of sandy barrier beaches, generally separated from the mainland by tidal lagoons or salt-water marshes, and is on the whole monotonously level. Broad, flat-bottomed valleys, with bordering bluffs averaging some 50 feet in height, provide almost the only relief features. 2. Bisecting the Gulf portion of the Coastal Plain is the broad (20 to 75 miles wide) *Mississippi Flood Plain* [7], which, in the 600 miles from southern Illinois to the delta, affords some 30,000 square miles of rich alluvial land. 3. The gently rolling *Osage Plains* of Oklahoma [8]. 4. The *Piedmont Province* [9], which continues the gentle rise of the Coastal Plain toward the interior, is for the most part a rolling, though in places almost flat, plain with a few low, rounded hills. 5. The *Blue Ridge Mountains* [10], a distinct ridge flanked by numerous hills and deep valleys in Maryland and Virginia, widens in North Carolina and southward into a complex of rounded ranges lacking uniformity in trend (Mt. Mitchell, N. C., 6,711 feet, is the higest point east of the Rockies). 6. The *Great Appalachian Valley* [11], here, as in the Northeast, a fertile limestone trough composed of narrow valleys alternating with parallel ridges, is locally

known by different names. Since the early eighteenth century, man has used the Great Valley as a thoroughfare from the north to the south, and its lateral gaps have provided highways between east and west. 7. Like a thousand-foot wall, a mighty escarpment, the Allegheny Front overlooks the Great Valley on the west, forming the eastern edge of the *Appalachian Plateaus* [12]. Some parts of this province (e.g., in Tennessee) are quite flat, except for a few elevations above and a few valleys below general level; elsewhere (northern Alabama) erosion has been more active, and in eastern Kentucky and West Virginia stream dissection has proceeded so far that the plateau has become a labyrinth of valleys some 800-1,000 ft. deep separated by steep-sided ridges.

West of the Mississippi River, the *Ozark Plateau* [12a] corresponds in origin and general surface features to the Appalachian Plateaus, the Boston Mountains to the escarpment, and the *Arkansas Valley and Ouachita Ridges* [11a] to the Great Appalachian Valley.

The climate of the South favors plant growth. More than 75 percent of the area receives 40 or more inches and only 16 percent (along the western margin) less than 30 inches of rain each year. The precipitation is generally well distributed throughout the year, and except to the north and at higher altitudes snow is rare. In general the winters are mild, the springs early, and the summers hot. All of the lower South has at least 7 months of growing season and, outside of the mountains and plateaus, the entire South has a minimum of 6 months.

The original vegetation included pine forests on the sandy lands (notably, the Coastal Plain); oak, chestnut, yellow poplar, and hickory woods on the uplands; swamp forests of cypress and gum, scrub oak and mesquite woods on the drier plains of central Texas; and open grass prairies in the "black belts," the Texas coastal margins, and the drier plains to the west. As in the Middle West and the Northeast, the woodlands, while extensive, generally represent some stage of regrowth after cutting.

The South includes about 30 percent of the land area of the nation. The average population density, 47 persons per square mile, is less than one-quarter that of the Northeast. While the South has 32 percent of the total population of the country, 46 percent of the rural but only 19 percent of the urban population live in this section. The largest continuous area of dense population is in the Piedmont.

The South is traditionally agricultural. Cotton, which lent itself to the plantation system and slavery, was king for more than a century and remained so profitable through subsequent decades that it was raised largely as the single important commercial crop. Much, however, has happened in recent years to decrease its dominance. Though still the world's greatest cotton-growing region, the South has had to curtail its acreage to meet lower market demands and to diversify its agriculture to provide income under new conditions.

A great variety of crops is now grown, notably: 1, for the early markets of the North (e.g., garden truck, fruits, and berries); 2, crops which, though better adapted climatically to the northern states, are grown in the South largely as supply crops and rarely on a commercial scale (e.g., corn, wheat, oats, barley, hay, and forage); 3, tobacco, which has a wide range of distribution both North and South but its greatest areal extent in the South; and 4, crops distinctly Southern in their distribution (e.g., cotton, sugar cane, rice, peanuts, pecans, and citrus fruits).

Although the South now contributes only some 15 percent of the nation's manufactured articles, it is the most rapidly growing industrial section. The principal manufactures today include the production of: 1, iron and steel (largely concentrated in the Great Appalachian Valley especially around Birmingham, Alabama); 2, lumber and associated secondary forest products (the Appalachian highlands and the Coastal Plain); 3, furniture, particularly in North Carolina; 4, tobacco (Virginia and North Carolina); and 5, cotton textiles (Piedmont, from southern Virginia to central Alabama).

The South has a wealth of raw materials upon which a sound industrial future can be built: diverse agricultural raw materials, great forests, large reserves of coal in the Appalachian highlands, petroleum in Texas and Oklahoma, copper in Tennessee, phosphates in Florida, sulphur in Louisiana, iron in north-central Alabama, and bauxite in Arkansas, as well as abundant water power in the Piedmont and the Appalachian Plateau.

THE WEST

The West is shown on the map as beginning at the eastern margin of the High Plains. This boundary approximates the 100th meridian, the annual average rainfall line of 20 inches, and the limit between land with sufficient rainfall for ordinary field agriculture and land too dry for crops without either irrigation or dry farming.

More diversified topographically than any other part of North America, the West may be divided into the following physical provinces: 1, the *High Plains* [13], broad, semiarid, flat, or gently rolling; 2, the *Rocky Mountains* [14], not a single chain, but a wide, discontinuous tract of rugged mountains divided into numerous ranges and high enough to create formidable barriers to transportation; 3, the *Colorado Plateau* [15], a seemingly level highland trenched by canyons, many of which are deeper than they are wide; 4, the *Basin and Range Province* [16], a vast region of rugged mountain ranges, enclosed basins of interior drainage, and wide desert plains; 5, the *Columbia Plateau* [17], an intermontane upland covered by a thick layer of lava; 6, the *Sierra-Nevada Mountains* [18], a lofty barrier with a steep face to the east and a long slope to the west (Mt. Whitney, 14,501 feet, highest point in the United States, directly overlooks Death Valley, 276 feet below sea level, the lowest point in North America); 7, the *Cascade Mountains* [19], a chain of volcanic peaks standing on a wide plateau; and 8, the *Pacific Slope* [20], a complex region of rugged, though generally lower mountains, broad alluvial valleys, and narrowly confined coastal lowlands.

Most of the West is arid. Only about 10 percent of the area has a rainfall of 30 inches or more, the amount generally considered essential for the more productive phases of humid agriculture in intermediate latitudes. The only regions where the precipitation is heavy are in the northern Pacific Slope (over 80 inches at higher altitudes). On the whole Pacific Slope, and over portions of the interior highlands to the east, the precipitation comes largely in the autumn and winter, and hence the growing season is relatively dry, particularly in California. On the High Plains winters are cold and summers hot, while in the higher plateau and mountain regions farther west, although winter temperatures are low, the summers are generally mild. On the northern Pacific Slope the winters are cool and the summers mild; southern California has a subtropical climate.

In the humid and subhumid parts of the West, coniferous forests predominate. There are no broad-leaved hardwood forests. In California, chiefly south of San Francisco, is

found the broad-leaved evergreen chaparral vegetation, similar to that of the Mediterranean region. In the areas of moderate aridity, notably the High Plains, there are extensive grasslands, which give way in the arid regions to desert scrub. Succulent plants such as cactus are characteristic of the extreme southwest.

The West includes nearly half of the total land area of the nation but supports only 14 percent of the population, the average population density being 12 persons to the square mile. Aridity and the comparative recency of settlement have limited the number of people. The people, in general, are concentrated on the humid lowlands of the Pacific Northwest, on the irrigated lands, and in the mining communities. The leading ports of the Pacific Slope, Los Angeles, San Francisco, Portland, and Seattle, serve as the western gateways of the nation.

Three principal types of agriculture are practiced: humid agriculture in the Pacific Northwest; dry-land farming, most successful on the High Plains and in the northern part of the intermontane plateau; and irrigation, widely distributed throughout all but the humid parts of the section. Irrigated cultivation includes a variety of general field crops as well as fruits, nuts, and vegetables. The leading crops of the dry-farming areas are grains and fodder, while the agricultural lands of the humid districts are largely devoted to small grains, vegetables, fruits, and berries.

The West has great potentialities as a grazing region, and the livestock industry, especially the raising of beef cattle and sheep, has been of importance since the days of pioneer settlement. Dairying is largely concentrated around the urban centers.

The West produces less than 10 percent of the manufactured goods of the nation. Such industry as exists is largely concentrated in the metropolitan areas of the Pacific Slope. The packing and processing of fruits, vegetables, fish, borax, and petroleum, flour milling, pulp manufacturing, saw-milling, motion pictures, and the making of aircraft are the leading industries.

The section as a whole is one of great natural resources. Large coal reserves are found in Colorado, New Mexico, Utah, Wyoming, Montana, Washington, and Oregon, and important oil fields in southern California and central Wyoming. Iron ores are widely distributed, but those in Colorado and Utah are especially significant. The non-ferrous metallic minerals, however, make the West one of the leading mineral regions in the world. The more important ores occurring in commercial quantities are copper, zinc, lead, gold, silver, platinum, mercury, nickel, bismuth, chrome iron, antimony, and tungsten. Two other natural resources whose exploitation is important are the commercial forests and sea fisheries of the northern Pacific Slope.

* * *

CONSERVATION

Conservation of U. S. natural resources did not begin on an important scale until 1901, when Theodore Roosevelt became President.

The pioneers who opened the vast territory west of the original colonies probably never dreamed that some day conservation would be necessary. Between 1750 and 1890 the driving urge was to develop the whole region for the use of man. The need was to clear the forests for new farms, open rivers to navigation, mine more coal and metals for America's still small but growing industry, find new grasslands for herds of sheep and cattle.

The Homestead Act of 1862 encouraged Americans to move west and clear their own farms. It provided that any citizen or applicant for citizenship might apply for 160 acres of unappropriated public lands (called the "public domain") and might acquire title by living on it and cultivating it for five years. By 1904, 718,930 homesteads totaling 96,495,414 acres had been established, and most of the desirable land had been taken up. Homesteading declined from this time on, and came to a virtual stop with the Taylor Grazing Act of 1934 (see *Grasslands* in this section).

PUBLIC DOMAIN

All lands owned by the U. S. Government are part of the public domain. This once consisted of 1,500,000,000 acres (not including Alaska), but only about 411,000,000 acres remain. In the past three decades the federal government has gone into reverse and actually purchased land. (States, counties, and cities have also bought some tracts.)

Although the public domain no longer contains the richest American land, it still represents a great fund of wealth. Forests, grazing land, land rich in minerals, and areas having scenic or historic fame make up most of the acreage. The people of America are free to use these areas for recreational purposes, but exploitation of resources, grazing, and farming are usually forbidden or strictly controlled.

BACKGROUND OF CONSERVATION

Yellowstone, the first national park, was established in 1872. A few reservoir sites were withdrawn from the public lands in the 1880's, and the first forest reserves were set aside in 1891, marking the beginning of the present national forests.

When Theodore Roosevelt, an ardent conservationist, became President in 1901, he determined to stop waste of natural resources. He had the active support of Gifford Pinchot, head of U. S. forest conservation work from 1898 to 1910. They succeeded in having 148,000,000 acres of public lands converted to federal forest reserves. Power sites and acreage containing valuable minerals and oil were similarly set aside, and the resources of Alaska protected against private exploitation.

In 1908, President Theodore Roosevelt called a conference of state governors which led to the appointment of the National Conservation Commission. It took an inventory of resources and made a nine-volume report on which much of the subsequent conservation work has been based.

Since Theodore Roosevelt's day, conservation has constantly progressed in the United States. With the present administration it attained its greatest proportions. (See *Department of the Interior* under *Government.*) One of Franklin D. Roosevelt's first acts was to ask Congress to establish the Tennessee Valley Authority, the most ambi-

tious and far-reaching conservation project in U. S. history. (See *Power;* also section on *Water* in this chapter.)

Under the present administration there also have been extensive purchases of forest land, further withdrawal of public lands from settlement, large irrigation and power projects, measures to protect mineral, oil, and gas reserves, establishment of the Soil Conservation Service, reclamation work in the Great Plains dust bowl, rehabilitation of farm lands, regulation of coal mining, establishment of game and migratory fowl refuges, and, finally, the creation of the National Resources Planning Board.

CONSERVATION POLICY TODAY

Conservation is concerned with six types of resources: soil, mineral resources, water, forests, grasslands, wildlife. All six are interdependent. Deforestation causes floods, which in turn cause soil erosion. Exhaustion of water supplies makes land arid. Soil erosion caused by bad farming makes for bigger floods. Overgrazing will not only ruin grasslands as cattle ranges but also increase the water run-off and, consequently, the severity of floods. Bad mining can do as much to devastate a countryside as forest fires or floods. But for simplicity's sake, these interdependent branches of conservation are here considered separately.

SOIL

At least half of America's farm lands suffer from wind or water erosion, or both. Wind erosion has done vast damage in the Great Plains area because grasslands were plowed under. During the drought years in the 1930's, dust storms blew away the fertile topsoil in half a dozen Midwestern states and actually obscured the skies as far east as New York City.

Water erosion can take place only on sloping land. But since millions of U. S. farms, especially in the East, are hilly, water erosion is a serious problem.

Careless farming exhausts soils too. Cotton, tobacco, and certain other crops deplete the soil continuously, and unless replenished, it eventually becomes entirely unproductive.

The Department of Agriculture's Soil Conservation Service takes exhausted land out of circulation by putting it into forests, grass, and wildlife refuges. It seeks, through persuasion and education, to get farmers to treat their soil wisely. Crop rotation, use of fertilizers, contour plowing to prevent rain water from washing out the soil, tree planting as protection against dust storms, return of a proportion of their land to pasture and forests—all these are techniques encouraged by SCS. (See *Agriculture: AAA Program;* also *Research.*)

SCS also works for restoration of local water resources—ponds and swamps which have been unwisely drained, etc. It advocates construction of small dams to impound local flood waters and the digging of wells for use during drought.

It also is responsible for the planting of shelter belts in the dust-bowl area, and it has led the campaign for return of land in this region to grass. In all, it has improved more than 32,000,000 acres of farm land.

Land-use-capability maps are being made by the Soil Conservation Service for the entire United States. More than 90 million acres have been mapped to date and the work continues. The maps guide farmers in making the best use of their land. The colors of his land on the sectional map supplied to the farmer by SCS tell him where terracing, strip-cropping, or other measures for soil protection are advised. Green areas on the map represent the best lands. Pink zones require special treatments and farmers obtain advice on methods for using these sections of land from their local soil conservation district. SCS works closely with the soil-conservation districts of which there are about 800 organized in 47 states. They are land-use cooperatives on which farmers and ranchers pool their resources for community action to protect local land from further damage and strengthen it for the future.

As a result of this detailed study of land use and the engineering and technical assistance which SCS gives to more and more farmers, they are plowing along the contour of the land instead of in the traditional straight rows which allow water to run downhill. And more farmers are rearranging their crops to make wiser use of their land.

Much of the soil conservation program is made possible by the complex of credit agencies in the Department of Agriculture. The Farm Security Administration makes loans to farmers as an aid to the work and (in cooperation with the Agricultural Adjustment Agency) encourages the planting of soil-building instead of soil-depleting crops. AAA also makes it easy for farmers to get good fertilizers cheaply, while the price controls and allotment plans are designed to dissuade the farmer from overworking his land in order to earn a living. Backing up these agencies is the Agricultural Research Administration, which furnishes needed data as to soils and crops.

Most states have agricultural agencies whose general objectives parallel those of the federal government, and which cooperate closely with it.

SUBSOIL (MINERAL RESOURCES)

By their very nature, mineral resources are exhausted as they are consumed, and conservation can make them last longer through rational exploitation and reasonable brakes on consumption.

In the early days of oil production, competing companies would rush to put as many wells as they could into a field. Since all the wells tapped the same supply, many fields were quickly exhausted, with enormous waste of oil and gas. Within the past ten years controls have been set up. The U. S. Geological Survey has established standards for opening new fields, and many states have passed laws which effectively cut waste of natural gas and petroleum.

The Department of the Interior has established similar standards for mining soft coal.

WATER

Adequate conservation of water resources must cover an entire watershed, from little mountain streams and surface run-off to larger streams and finally the rivers.

Flood control has been one of the chief conservation activities of the government. From June 1931 to June 1941 the government spent some 566 million dollars for reclamation projects and about $1,881,000,000 for river and harbor work and flood control.

East of the Mississippi Valley

Recent years have produced a new technique for flood control in the rain-abundant East. Formerly, inundations were handled by straightening riverbeds, and by building levees to strengthen and raise the riverbanks. This method did nothing to lessen the floods themselves, and it has involved a constant increase of control measures. At New Orleans, for instance, the levees now rise above the city level. Re-

cently engineers have gone to the cause of the trouble—by starting at the river's sources, checking flood waters there, and then working down along the whole river's length.

Tennessee Valley Authority

TVA has most spectacularly run the entire gamut of water-control technique: forestry, grass planting, soil-erosion prevention by better agricultural methods, headwater check-dams, large dams, etc. Its activities affect more than 41,000 square miles in seven states. It has not only controlled floods, but has made navigation possible on much of the Tennessee River system. Last but not least, the great amount of power it has developed since 1933 now helps to make possible America's great program for aluminum production. (See *Tennessee Valley Authority* under *Government;* also *Power.*)

The government has applied the new river-control technique to other Eastern rivers—notably the Connecticut, where a disastrous flood took place in 1936. When completed, this project will include a system of locks and levees and other control works, costing approximately $57,460,000, along a considerable stretch of the river.

The Mississippi and Its Tributaries

Like the Nile, overflowing its banks each year, the Mississippi brings to its bottom lands millions of tons of rich alluvial deposits—at the expense of farms upstream, and millions of dollars' worth of damage.

In 1936 the Mississippi Valley Committee, appointed by the President, recommended in a voluminous report that the problem be treated as a whole, as was done in the Tennessee Valley. Although the Mississippi program has lagged behind that on the Tennessee, much has been done besides strengthening the riverbanks. Between Minneapolis and the junction of the Missouri with the Mississippi, 26 locks and dams have been built to control the flow, hold back flood waters, and assist navigation. A channel nine feet deep has been dredged from Minneapolis to the Gulf.

Water Conservation in the West

In the Great Plains, Mountain, and Pacific Coast areas there is insufficient rainfall. Here the need is not only to control the occasional freshets but to store water for irrigation, hydroelectric power, and inland navigation. Most of the 160-odd dams the federal government has built lie west of the Mississippi. Among the biggest dams are Grand Coulee and Bonneville on the Columbia River, and Boulder Dam on the Colorado. Besides helping to make the West Coast a key industrial area—a timely accomplishment in days of war—they are bringing hundreds of thousands of arid and semiarid acres into cultivation. Many families removed from submarginal lands are being settled on this irrigated acreage.

FORESTS

Forests supply commercial lumber, hold moisture so that floods will not occur, and provide recreation areas. They can be made to serve all these purposes indefinitely if rationally managed—that is, so that timber operations do not damage the land or impede the growth of as much new timber as is taken out. Total U. S. forest land: 630-odd million acres.

About one-third of U. S. forest land is national property. The Forest Service of the Department of Agriculture administers 177,650,000 acres, most of which is west of the Mississippi, and approximately 21 million acres of which is in Alaska. The cutting of timber in these national forests is controlled in order to assure a regular crop of trees. The amount cut annually is about 1,250,000,000 board feet of lumber. This is planned so that it approximately equals the amount of timber grown during the same period on the remaining trees.

Millions of people visit the national forests annually. Extensive precautions against fire include telephone service and airplane patrols. Where necessary, fire-fighters and their equipment can be dropped by parachute. Until the liquidation of the Civilian Conservation Corps in the summer of 1943, this agency built trails and firebreaks and reforested denuded areas. Altogether in the 10 years of its existence, the CCC planted some 3 billion trees.

The Forest Service also helps private owners to fight fires, and advises them on forest management.

The Forest Service in 1935 launched President Roosevelt's project to protect dust-bowl farmers by planting shelter belts all through this region. Millions of trees have been planted already, and it is hoped that this—in conjunction with the return of much land to grass cover, better water-resources control, and better farming methods—will put an end to the wind-blown destruction of Kansas, Nebraska, Iowa, and Dakota farms.

The Department of the Interior manages about 6,400,000 acres of commercially usable Indian forest lands. It also administers roughly 5 million acres of forest land in national parks (recreational areas not to be confused with the 160 national forests), but almost no timber is cut from them.

Wooded areas under the Tennessee Valley Authority present special problems. Many a steep mountain slope had been denuded by misdirected farming or by reckless cutting. To prevent floods and provide an even flow of water for its power plants, TVA is not only building dams but seeking to preserve existing forests and reforesting cut-over land.

The Department of Agriculture's Bureau of Entomology gives both the government and private forest owners help in eradicating destructive tree diseases.

The states—notably New York, Pennsylvania, Minnesota, Michigan, Washington, Idaho, and Montana—have followed the federal lead to a certain extent in forestry policy, and hold over 19 million acres of forest land. Most of this is scientifically managed and produces timber for the market. Many states, by giving advice and supervision, reducing taxes, and supplying free seedlings, encourage reforestation on privately owned land.

Some 7,800,000 acres of forest land are held and managed by counties, cities, towns, hospitals, and schools.

Thirty-two percent of U. S. forests, or a total of 202,-100,000 acres, are industrially owned and commercially operated. High-speed logging, destruction of young trees, devastation by fire have made nearly 80 million acres waste-land—and, worse, a flood and fire menace. The 138 million acres of woodland owned by American farmers not only supply fuel and other materials for their owners' needs but contribute substantially to the nation's timber supply.

GRASSLANDS

Originally there were some 850 million acres of range, all located west of the Mississippi. This range included much desert brush and scrub, 130 million acres of forest range, and 320 million acres of open grasslands.

Much of the grasslands area was taken over by farmers—much more, as the dust-bowl storms proved, than was advisable. Most of the remaining range, some 728 million acres, is mountainous, semiarid, or otherwise unsuited for farming.

Of this great remaining range area, 52 percent is now in private, 39 percent in federal, and the balance in state or county hands. Federal grazing lands are mostly in the 177,650,000 acres of national forests, the 55,400,000 acres

of Indian lands, and the unappropriated public domain. Over the past 30 years only 16 percent of the total area has been improved, and more than half of this was in the national forests.

Most of the range land has been harmed by too heavy grazing. The range has been carrying about 17,300,000 animals, whereas ideally it should support 10,800,000 at most. Stripping of grass from some areas, with consequent erosion, has been the inevitable result. Once stripped, it takes a long time to bring the grass back.

Until recently the Forest Service and the Office of Indian Affairs have been the chief agencies for preserving the range. Since 1905 the Forest Service has rigidly controlled some 88 million acres of grazing land in the national forests. The situation on the 48 million acres of Indian range was bad until 1934, when the Indians were persuaded to cut down on overgrazing.

In 1934, after Congress passed the Taylor Grazing Act, the President withdrew 80 million acres of public domain from homesteading. Organized into grazing districts by the Department of the Interior, with due precautions against overuse, this acreage worked out so satisfactorily that practically all the rest of the public domain was withdrawn from settlement. Restoration in due time of all 266,006,200 acres of range under federal control seems assured.

Some 376 million acres of private range are still a problem. The owners have done little conservation work, though the obvious success of government programs has led many private owners to seek federal advice.

WILDLIFE

Like other natural resources, wildlife has been threatened with extinction by reckless, unrestricted hunting, trapping, and fishing, draining of swamps, and contamination of coastal and inland waters. Some species, such as the passenger pigeon, have actually died out.

Legislation, national and state, has now given most wildlife a chance to survive. The Lacey Act in 1900 prohibited the interstate shipping of illegally killed wildlife, and treaties with Great Britain (for Canada), and Mexico, whose provisions were embodied by Congress in a Migratory Bird Treaty Act, considerably restricted the shooting of migratory birds. The states also passed numerous laws in order to conserve bird life and wild animals. Fishing has been similarly restricted by state and federal laws.

Many states have established game reserves and restocked streams and forests. In 1934 President Roosevelt established a Committee on Wildlife Restoration, which urged establishment of adequate game refuges on submarginal land. This is being done in connection with the soil conservation program.

Comprising more than 7 million acres in the continental United States, 252 migratory bird refuges have been established. Altogether, if Alaska and the island possessions are included, U. S. wildlife refuges contain nearly 17,834,536 acres. In addition, the federal government by 1941 had set aside some 6,642,138 acres for 14 big-game reserves for buffalo, elk, and other large animals. And in 1937 Congress authorized grants-in-aid to states that will create wildlife reserves of their own.

These activities come under the Department of the Interior's Fish and Wildlife Service, which also works to avoid wasteful fishing operations, prevent the spread of fish diseases, and restock thousands of streams all over the country with fish spawned in special fisheries.

This service insisted, in the case of Grand Coulee and Bonneville dams, on the building of "ladders" several hundred feet high which salmon from the Columbia River mouth can climb to get to their spawning grounds upstream. More than 1,000 miles of this Northwest river system (America's chief source for salmon) have been surveyed in an effort to improve spawning places. Alaska's fisheries and wild game are protected too.

CONSERVATION IN WARTIME

The development of new U. S. reclamation projects has been suspended for the duration of the war. But dams built primarily to develop power for aluminum and other production have an important conservation function. The need for more beef has made good range management more important than ever. Soil and water conservation practices are large factors in the increased production of foodstuffs.

Although many long-range conservation projects have been temporarily put aside, conservation's benefits begin to seep widely through the population and its objectives are more widely understood than ever before. The basic philosophy of conservation is in America to stay.

* * *

PEOPLE

There were about three-quarters of a million Indians in the land that is now the United States when the first permanent European settlement was founded by Englishmen at Jamestown, Virginia, in 1607. The Indians belonged to hundreds of different tribes and spoke many different languages and dialects. Some were marauders; some hunters; in the Southwest the Pueblo tribes lived in well-built houses and were accomplished farmers. The degree of civilization varied from primitive savagery in some of the plains tribes to advanced democracy and intertribal cooperation among some of the groups in the area which is now New York State. Six of these latter tribes, called the "Six Nations," formed the Iroquois Confederacy, which has been called the first League of Nations.

It was a rich continent that the first European settlers found, but an untamed and unfriendly one. Penetration of the interior was far beyond the strength of these early groups, who somehow had to maintain their slim life lines to Europe until they could make their colonies self-supporting, and so were limited to the edge of America for many years.

The early English settlements were along the Atlantic Coast in New England and Virginia. Between them were the Dutch settlements at what is now New York City, and along the Hudson River. The French settled Quebec, Canada, in 1608 and soon thereafter explored the Great Lakes and the Mississippi Valley and set up fur-trading posts—Detroit, Duluth, and St. Louis—which became important American cities.

It was in 1610 that some Spaniards settled Santa Fe, in New Mexico. They had already settled in Florida. There were Spanish settlements around the Jesuit missions in California before 1700. In 1812 a party of Russians, interested

in the booming fur trade, built their first stockade on the California coast north of San Francisco.

English, French, Spanish, Dutch—and in smaller numbers Swedes and Swiss—all came early to America. Many of the English came to escape religious persecution. The French and Spanish Catholic missionaries came to convert the Indians; but with them came soldiers and traders bent on profit and conquest. The Dutch came mostly to trade, but they were not prepared to maintain and defend their colonies—and neither were the Swedes nor Swiss.

The French dreamed of a great empire in the Mississippi Valley and the rich Great Lakes country, while the Spanish actually built an empire in the Southwest and the English slowly tamed the wilderness along the east coast. The French dream ended in 1763 with the Treaty of Paris, following defeat in the French and Indian War. This was the American phase of the Seven Years' War in Europe, and was fought between the British (and some Indian allies) against the French with their Indian allies. The French ceded all their territory east of the Mississippi River to the English, and 40 years later, in 1803, by the Louisiana Purchase, the United States acquired the vast territory the French had once held west of that river. Spain agreed to cede Florida to the United States in 1819. Following the war between the United States and Mexico in 1846, the remaining original Spanish holdings in what is now the United States were transferred.

Thus gradually the language, laws, and customs to prevail in the new country were determined, and the broad geographical outlines established. It became an English-speaking nation, with laws based on those of England and customs and traditions with predominantly English roots. The settlement of these problems of language, laws, and size, and the American Revolution, which brought a new kind of government based on a written constitution, acted to attract millions of men and women seeking new lives in a new world.

IMMIGRATION

Although no census was kept during that period, it is known that about 250,000 people came to what is now the United States between 1776 and 1820. They came chiefly from northwestern Europe, especially the British Isles. There should also be mentioned the forced import of Negro slaves from Africa, which began in 1619 and was prohibited by law in 1807. There were about 700,000 slaves in America in 1790 and 2 million in 1830.

The early pioneers chopped through the wilderness, drove their way down the river valleys to the Mississippi, and slowly filled the land between the rivers with their settlements and farms. In the West the fur traders made their way up the Missouri River and its tributaries, establishing forts and trading posts, and settlers followed in their wake. The fur trade waned when the beaver hat went out of fashion in the 1850's, but the settlers remained.

German, English, Irish, and Scandinavian immigrants followed close on the heels of the earliest pioneers and settled much of the Midwest.

In the last decade of the nineteenth century and the first decade of the twentieth came the great wave of immigration from central, southern, and eastern Europe: Austrians, Italians, Poles, Bohemians, Hungarians, Slovaks, Greeks, Russians, and others. They came, on the average, at a rate of almost half a million a year until 1901, after which the rate rose sharply, averaging almost a million a year until 1914.

IMMIGRATION RESTRICTIONS

It was inevitable that sooner or later there would be moves to limit the numbers of immigrants. The first broad immigration law was passed on August 3, 1882, and was designed to prevent the entry of persons likely to become public charges. It was followed by a series of laws limiting immigration on a variety of grounds. In 1917, illiterate aliens over 16 were excluded. The first law to regulate the number of immigrants admitted annually from each country was the Immigration Act of 1921 which fixed the number of aliens to be admitted from any country outside the Western Hemisphere at three percent of the total number of persons of that nationality residing in the United States in 1910. A new law, passed in 1924, provided for the admission of not more than two percent of the population of each nationality resident in the United States in 1890. Finally, by the National Origins Act of 1929, the total number of immigrants who might be admitted in one year was reduced to 150,000 to be apportioned among the various European countries in proportion to the "national origins" of the American people in 1920. Immigration from other American countries was left undisturbed except by a Department of Labor ruling that no immigrant should be admitted who might become a public charge.

In the fall of 1943, a bill came up before Congress to repeal the Chinese Exclusion Acts which allow only certain Chinese individuals to enter the U. S. (merchants, professors, ministers, students, etc.). This bill would permit Chinese immigrants to enter on the same quota basis as other friendly nationals and allow those now legally resident in the U. S. to become citizens. By November, the bill was passed by both houses of Congress, and awaited the President's signature, expected as soon as he returned from the Teheran and Cairo Conferences.

Annual immigration from 1925 through 1930 varied from 241,000 to 335,000. From 1931 to 1939, partly because of the depression, it averaged less than 50,000 per year. The outbreak of the present war brought a sharp increase, and from 1939 to 1941 more than 200,000 aliens came to the United States under the established quota system. From June 30, 1942 to June 30, 1943, 104,842 aliens entered the United States.

Reasons for immigration have been almost as diverse as the people who immigrated but the vast majority doubtless came because they hoped to improve their lot and that of their children. Freedom in worship, speech, and action unquestionably drew large numbers. The free land to be had west of the Appalachian Mountains must have brought many in the early days, though it is doubtful if they knew how hard they would have to work to conquer it. Large numbers of immigrants looked forward to the opportunities for individual achievement. Some were lured by stories of quick and easy riches, some by the promises of promoters.

FOREIGN-BORN IN THE UNITED STATES TODAY

According to the 1940 census more than 11 million residents of the country today were born abroad, and 23,200,000 had one or both parents born outside the United States. The 10 countries which contributed the largest percentages of the 34,576,718 persons in the United States who are foreign-born or have one or two foreign-born parents are as follows:

Germany	5,236,612	Eire	2,410,951
Italy	4,594,780	England	1,975,975
Canada	2,910,159	Sweden	1,301,390
Poland	2,905,859	Austria	1,261,246
Russia (USSR)	2,610,244	Mexico	1,076,653

Throughout the years newly arrived immigrants—drawn by a community of blood and language and by personal ties—have tended to gravitate to neighborhoods where others of the same national origins have preceded them. To a lesser extent they have also tended toward similar occupations.

Thus Germans and Scandinavians went for the most part to the Midwest, where they settled on farms, in small communities, or in the larger cities. Most Italians and Slavs settled in the great industrial cities of the eastern seaboard, but Slavic groups penetrated farther west—to Pittsburgh, Cleveland, Detroit, and Chicago. Immigrants from the Orient largely settled on the west coast, where many of them became small farmers or truck gardeners.

Exceptions to the main trends must be noted. Germans founded, for example, communities in Texas and New England; Italians settled in California and Arkansas; and there are small groups of Chinese in every large city. Such exceptions hold true for all national groups.

To assist in the assimilation process, educational facilities, such as night schools for the foreign-born, adult education classes, etc., have been provided under both public and private auspices. And the transition from the old world to the new has been made easier in the early stages by recognition of the importance of preserving the old culture until such time as the immigrants are ready to absorb the new.

Foreign-language groups have their own press and radio, their fraternal orders and benefit societies; and churches have played a particularly important role in preserving the cultural inheritance.

The newcomers' handicaps—unfamiliarity with the language and customs, and often a lack of marketable skills—have inclined to hold them at the lower economic levels. But members of the second generation have tended both to spread out from the core of original settlement into other regions, and to improve their economic status through education and training received in the free public schools. Assimilation of immigrants into American life has not always been at a uniform rate, of course; some groups have been merged much more rapidly than others.

INDIANS

Perhaps the least assimilated group in the United States is not a foreign group at all—the American Indians.

About 361,000 of these first Americans, belonging to approximately 300 tribes and groups, most of them on 277 rancherias, missions, and reservations set aside for them by the federal government, are living in the country today. All Indians are citizens of the United States. Some of their land is individually owned, some owned by the tribe, some held in trust by the government. In 1940 Indian land totaled over 55½ million acres, of which 18½ million were in Arizona, more than 6 million in Montana, 6 million in New Mexico, 5½ million in South Dakota, and the remainder scattered across the continent. There is Indian land in about 30 of the 48 states.

Efforts to assimilate the Indian into the general population were made early in U. S. history, and in 1887 the General Allotment Act gave farms to large numbers of Indians, in hopes that this would stabilize the Indian population. Unfortunately farming is not an occupation that the majority of tribes knew or cared for, and they did not learn it easily. Also, the heirship provisions operated badly and deprived many Indians of land. The experiment must be termed a failure, and it was so recognized in 1934, with the passage of the Indian Reorganization Act. This act makes it practicable for Indians, without economic sacrifice, to maintain their own tribal organization if they wish—and in most cases it is advantageous for them to do so. Provision is made for workable self-government on the reservations and for tribal corporations empowered to borrow money, buy land, machinery, and equipment, and to do business of all sorts. These corporations are operated by democratically elected tribal councils.

Today between 15,000 and 20,000 Indian men and women are serving in the armed forces and many of them have distinguished records—such as Lieutenant Commander John C. Waldron, a Sioux, who commanded famed Torpedo Squadron 8 and for whom an airfield in Texas was recently named.

NEGROES

Of the nearly 13 million Negroes in the United States, constituting almost 10 percent of the total population, 97 percent are of wholly American parentage. In 1940 almost three-quarters of the Negro population was still living in the South. But the northward migration and the movement from rural areas to cities, begun even before the last war, continues at an accelerating rate.

Eighty years ago the Negro was elevated from a slave status to that of a free citizen, enjoying protection under the laws of the country designed to guarantee equality of citizenship and opportunity to all, regardless of race, creed, color, or previous condition of servitude.

Legally this change was accomplished almost overnight. But to bring it about in fact has been a slow and laborious process. Under the United States Constitution the federal government does not control local ordinances and regulations nor can it prevent private individuals from exercising certain kinds of discrimination.

Prejudice and discrimination, deep-seated and not easily stamped out, have led in certain states to the enactment of legislation designed to prevent the Negro from exercising his full rights as a citizen. These laws have recently been repealed in some states, and there is agitation for their repeal in others.

In the period since the Civil War, the status of Negroes has shown a steady advance. There are many evidences of this:

Between 1866, three years after the Emancipation Proclamation, and 1936, Negro literacy rose from 10 percent to nearly 90 percent, and the number of teachers increased from 600 to 55,000.

Financial strength, in savings and property, rose in this period from 20 million dollars to $2,500,000,000.

Today there are some 100 universities and colleges devoted exclusively to Negro education in the United States and there are also thousands of Negroes enrolled in state and private colleges and universities. There are 300 Negro newspapers and periodicals. Negroes owned, in 1939, some 30,000 stores with sales totaling 71 million dollars.

Individual Negroes have achieved places of distinction in city, state, and federal government posts; as scientists and educators; as writers, artists, and professional men. Negro athletes are famous, Negro entertainers among the most successful and best-liked in America.

The rate of advance has of necessity been slow. Even today discrimination in such elemental matters as the right to work in certain industries and the right to vote still persists. But the fact that this condition is recognized and viewed with growing concern holds hope for the future.

POPULATION DISTRIBUTION

It is estimated that there are 135 million people in the United States today (1943). Of the 131,669,275 persons living in the United States at the time of the 1940 census, 74,423,702 lived in cities with a population of more than 2,500. Farm population was 30,216,188. Rural non-farm (small town) population totaled 27,029,385.

Thus approximately 56.5 percent of the people in the United States live in cities. This percentage has been increasing ever since the late years of the nineteenth century, when industrial growth was proceeding rapidly. Expanding industry, offering relatively high wages, called for workers. Men and women came from the farms to the new industrial cities of Pittsburgh and Detroit, Toledo and Akron, Chicago and Milwaukee, and dozens of others all over the land.

This movement into the new industrial areas brought some cities more population than could be employed. However, the development of the automobile and of better public transportation facilities led to the spread of less thickly settled suburbs around large U. S. cities, in a move toward decentralization. In and around these suburbs small-scale farming is widely practiced.

The war interrupted this trend and set a new pattern for population movement. Great new munitions plants were established in areas not near the coasts, yet near adequate transportation facilities. In some cases the number of construction workers needed to build these plants was larger than the entire population of the nearest town. Then came a second influx of factory workers and their families. A Congressional committee estimated that more than 5 million Americans in 1941 moved from their homes into war work in other cities or in the newly established factory centers.

The diverse origins of American people have not prevented the development of an American character; of a certain homogeneity of traits. Other peoples sense this as well as Americans themselves. An American in Cairo or London or Sydney is nearly always recognizable as such. Yet no two Americans, and perhaps no two Europeans, would ever agree upon a definition of exactly what makes an American recognizable, though they might agree on some of the traits. It is nonetheless true that American people are not mixed but blended. They do have certain characteristics in common, whatever their origins and backgrounds. Perhaps excellent communication and transportation facilities have contributed to these common traits. It may be because there are no boundaries in the United States comparable to those in Europe. State lines have little importance or meaning to the traveler in the United States; he may cross them without even knowing he has done so. Customs and ideas cross with equal ease, to make for unified traditions and a unified people.

THE WAR AND THE PEOPLE

Most of the millions of men and women of German and Italian ancestry have repeatedly demonstrated their loyalty to their adopted land. Recognition of the attitude and contributions of Italian-Americans led the government, on October 12, 1942, to announce that non-citizens of Italian origin were no longer to be classed as enemy aliens.

The present conflict has deeply affected the people of the United States, but it has not divided them, as totalitarian leaders had hoped, along national or racial lines. Men and women of every extraction are fighting a common foe and working side by side both in war industry and in the armed forces of the United States.

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PUBLIC HEALTH AND VITAL STATISTICS

In the past 25 years, public health activities of the United States have grown from a meager trickle to an organized effort that reaches every home in one way or another and saves uncounted lives. The program is carried on by the Public Health Service of the Federal Security Agency, by the Children's Bureau of the U. S. Department of Labor (see page 14), by state and local health departments, and by private groups.

With all these agencies at work, the health of the American people remained good during 1942. The general death rate for 1942 was 10.3 per 1,000 population, and the provisional death rate for the first half of 1943 is 11.0 per 1,000 population. Maternal mortality resulting from puerperal diseases has declined continuously for 13 years. In 1942 a new low rate was recorded—about 2 maternal deaths per 1,000 live births. This achievement has put the United States in a more favorable position than it formerly held among other nations. In 1921, 76 babies of every thousand born alive died in their first year. In 1943 that figure has been cut to a little more than 40. The tuberculosis death rate has dropped 60 percent since 1920. Typhoid fever, diphtheria, enteritis, and other diseases of infancy no longer bulk large as causes of death.

LEADING CAUSES OF DEATH

Diseases of the heart and cancer are the leading causes of death in the United States. Until the introduction of sulfa drugs in 1937, pneumonia ranked third. Since that time there has been a sharp decline, until in 1941, despite a mild influenza epidemic, the death rate from pneumonia reached a new low of 46.6 per 100,000.

Deaths resulting from automobile accidents rose in 1941 to 27.5 per 100,000 population, but other kinds of accidents decreased slightly. With the greatly reduced use of cars because of the war, there was a drop in deaths from auto accidents in 1942, but this was offset partly by an increase in industrial accidents. It is estimated that in an average year 10 million accidents, ranging from minor mishaps to disabling injuries, occur in the United States, perhaps half of them within the home.

The National Safety Council, which has 5,000 members and coordinates the work of some 50 community and state safety organizations, works with government agencies to promote safety campaigns. Through conferences, field work, and publicity of all kinds, the public is warned to use caution on the highways, in industrial plants, and in the home.

DEATH-RATE FLUCTUATIONS

Death rates per 100,000 population for the past 40 years show the following fluctuations:

Causes of Death	*1940*	*1930*	*1920*	*1910*	*1900*
Diseases of the heart	292.5	205.7	159.1	158.8	132.1
Cancer	120.3	97.3	83.2	76.2	63.0
Nephritis	81.5	90.8	89.2	99.1	89.0
Influenza and pneumonia	70.3	102.7	208.0	162.1	203.4
Cerebral hemorrhage and softening of the brain	90.9	81.0	81.7	75.7	71.5
Tuberculosis	45.9	71.5	114.0	160.3	201.9
Diabetes mellitus	26.6	19.0	16.0	14.9	9.7
Diphtheria	1.1	4.9	15.3	21.4	43.3
Diarrhea and enteritis	10.3	26.3	54.3	117.4	133.2
Motor-vehicle accidents	26.2	26.4	10.4	1.8	...
Other accidents	47.4	54.2	60.9	82.6	79.0

LIFE EXPECTANCY IN THE UNITED STATES

Twentieth-century advances in public-health education and methods, and in medical science, as well as a raising of the standard of living, have increased life expectancy in the United States. Today the average newborn infant may expect a life span of 63 years, nearly 20 years longer than that of the infant born in 1900. As a result, the population is older—that is to say, the percentage of men and women aged 65 and over is higher than at any previous time. Most of the "life saving" has been effected among infants and children. Consequently, diseases of the heart, cancer, and other ailments of middle and old age now loom large as causes of death.

FUNCTIONS OF THE PUBLIC HEALTH SERVICE

As the principal federal agency concerned with the health of the nation, the U. S. Public Health Service (USPHS) functions on a wide scale, with sufficient flexibility to meet emergencies and to cooperate with the armed forces and the 48 state public health departments. These in turn cooperate with county and city health departments.

All the large cities and most of the smaller ones have municipal public health services. Of the 3,072 counties in the continental United States, 1,829, or 60 percent, have full-time health services. In 1942 more than 21,000 public-health nurses were employed in the United States, and well over 70 percent were employed by tax-supported agencies—health departments, schools, and so forth.

Twenty-five years ago there were few free or part-pay clinics. Today there are an estimated 8,000 public clinics, operated by public and private institutions. Three-fifths of the counties have at least one general hospital apiece. Prior to the war, hospitals were scarce in sparsely populated areas. More than 150 million dollars in public funds is spent annually on medical care for low-income groups or those on public relief.

MAJOR HEALTH CAMPAIGNS

TUBERCULOSIS

A conspicuous achievement of public health and medicine in the U. S. is the fight against tuberculosis. Federal, state, and local governments—supported by the National Tuberculosis Association and numerous other private agencies—are fighting a winning battle which involves case-finding, treatment, and education of the public. In 1920 tuberculosis ranked third as a cause of death. In 1941 it ranked seventh.

Tuberculosis-control programs, covering many kinds of services to the people, are in effect in every state and territory. The amount spent in 1942 for these services totaled $25,962,000, of which more than 95 percent was devoted to the maintenance and operation of sanatoriums. Most state and county sanatoriums now have pneumothorax clinics, augmented by clinics in county and city health departments and general hospitals.

More than 80 percent of the nation's beds for tuberculosis patients are supported by public funds. Federal, state, and county sanatoriums provide 65,000 beds all told.

To prevent the war-induced rise of tuberculosis—usually experienced both in combatant and neutral nations—USPHS is aiding other federal agencies, state health departments, and war industries by routine X-ray examinations of all employees, whether or not tuberculosis is suspected. As many as 500 examinations are made per 8-hour day with recently perfected 35-mm. photo-fluorographic units. From one to three in every 100 workers examined are found to have tuberculosis, most of them previously unaware of their condition.

VENEREAL DISEASES

Much of the credit for the national drive against venereal diseases, and for the thorough airing the subject has had in print, goes to Dr. Thomas Parran, surgeon general of USPHS. He has ceaselessly stressed the need for active measures, for more frankness in facing the problem, and for more cooperation in regard to therapy.

The National Venereal Disease Control program was launched in 1938. Today there are more than 3,700 clinics throughout the country, an increase of 300 percent over 1938. Nearly 10,600,000 treatments for syphilis were given by public health doctors in 1942. In November 1942, Dr. Parran sponsored the opening in Chicago of America's first hospital center for rapid treatment of venereal disease. It is equipped to handle 2,500 patients a year, including infected prostitutes turned over to it by the courts for compulsory treatment. The number of these centers has increased to 40, and 60 more are proposed for 1943.

The syphilis rate in the general population is 24 per 1,000. A control program functions in every state health department and in every city with a population exceeding 500,000. A federal appropriation of $12,500,000 was provided for this work in 1943.

Most health departments now furnish drugs to clinics and private physicians for treatment of venereal diseases—arsenicals and heavy metals for syphilis, sulfa compounds (see page 138) for gonorrhea. Total sales of drugs used for syphilis rose to more than 10 million doses annually after Dr. Parran went into action. More than 1,200 laboratories made 30 million blood tests for syphilis in 1943. Twenty-six states require blood tests of both applicants for marriage licenses, and a blood test of every pregnant woman.

Rapid strides are being made in the diagnosis and treatment of gonorrhea in the government clinics. The number of sulfa tablets distributed free increased by 90 percent in 1941.

MALARIA

Approximately two million Americans suffer intermittently from malaria, a disease that assumes fresh importance in this global war. A survey in 1941 showed the need for con-

trolling the malaria mosquitoes in military, naval, and industrial areas. USPHS has initiated practical control measures in 93 war areas in the South, where malaria is a hazard. By June 1942 more than five million square feet of standing water had been drained, and 775 million square feet of water had been treated with larvicide, as a malaria preventive. By June 1943, a total of 1,161 war establishments were protected against malaria.

No cases of typhus, smallpox, yellow fever, cholera, or plague entered the United States from foreign countries in 1942. Infectious diseases not subject to quarantine—such as typhoid fever—were noted at certain ports, but through the vigilance of the health authorities, there were no epidemics. The USPHS National Institute of Health sent supplies of its new anti-typhus vaccine to Rumania, Hungary, and Spain in 1939, but there has been no conclusive word as to results.

CANCER

Although the death rate from cancer is high, the increase in cancer deaths in modern times is due primarily to the survival of more people to susceptible ages. Better diagnosis has also contributed to the larger number of deaths reported as due to cancer. Nevertheless, this disease is one of the foremost public-health problems in the United States.

In 1937 Congress created the National Cancer Institute as part of USPHS. The institute's functions are to grant federal funds to American research scientists who are doing promising work on cancer—including causes, methods of diagnosis, prevention, and cure; to conduct independent research; to train qualified physicians in diagnosis and treatment; and to lend federally owned radium to hospitals for treatment of indigent cancer patients.

In addition, funds have been made available to state health departments for cancer-control work, the purpose of which is to assure citizens of competent diagnosis, regardless of their income. In some instances, free treatment is provided for indigent patients. All state programs provide for cancer education, for both the medical profession and the public. The American Society for the Control of Cancer, a private organization, has been an important factor in the general educational program.

As a result of these activities, more individuals with cancer receive early diagnosis and have a better chance of survival. (See also page 135.)

WAR ACTIVITIES OF USPHS

USPHS faced new responsibilities when the nation went to war. Villages grew into cities overnight, as military camps and war factories sprang into being near-by. This mushroom growth put an added burden on local public health services. To help meet the emergency, USPHS recruited and trained more than 700 doctors, dentists, nurses, engineers, and chemists, and sent them to the assistance of the states for duty in these hard-pressed war areas. Much needed equipment was loaned for the duration of the war.

The federal government appropriated 300 million dollars in 1941 for construction of community facilities in areas where the need was acute. These include water-supply systems, sewage-disposal plants, health centers, and hospitals.

In war, as in peace, USPHS establishes and enforces regulations for maritime quarantine; conducts research on diseases and the pollution of inland waters; maintains medical and hospital services for certain categories of legal beneficiaries of the federal government such as the U. S. Coast Guard, merchant seamen, American Indians who are government wards, and others; advances public-health work through leadership, technical assistance, and administration of federal grants to state health departments. A new departure in this field is the program to supply pharmacists' mates to all merchant ships. Many such ships have never had any first aid or sanitation service. The first class of 239 was graduated on March 12, 1943.

International health relationships are receiving increased attention as the result of the wide dispersal of United States forces. Five medical officers have been assigned to supervise epidemic control and other health problems in North Africa at the request of General Eisenhower. A number of public health medical officers are serving with the Army in various theaters and eight have been assigned to the School for Military Government at Charlottesville, Va. Still other officers are serving in Latin America in cooperation with the Pan-American Sanitary Bureau.

INDUSTRIAL WORK BROADENS

Research in industrial hygiene, aviation physiology, tropical diseases, chemotherapy, and typhus fever has been intensified to meet war conditions. State and federal cooperative programs for public health services, venereal-disease control, industrial hygiene, and other civilian health activities are being enlarged. Observations on patients deficient in the Vitamin B complex are being made at the National Institute of Health field station in Georgia, run in cooperation with the University of Georgia Medical School. Special tests have been conducted for rabies, tetanus, influenza, pneumonia, and typhoid fever. Systematic studies on the synthesis of drugs for the treatment of malaria are under way. A new method for relieving the pain of childbirth has been developed by two young USPHS officers. Known as caudal analgesia, the method may prove to be applicable in fields of medicine other than obstetrics.

The federal authorities have made every effort to secure for the health and medical services adequate supplies of essential drugs and medical equipment. Supplies on hand of quinine and other cinchona-bark derivatives have been frozen and their sale restricted to use as anti-malarial agents. Meanwhile, chemists seek new substitutes for opium and quinine. The demand for vaccines, antitoxins, and serums has greatly increased. Rubber and metals have been earmarked for making surgical gloves and instruments respectively. Gauzes, surgical tape, and sutures are rigidly conserved. Drugs compounded of chemicals used in munitions manufacture—phenol and glycerin, alcohol and other solvents—are under control.

WAR WORKERS AIDED

The activities of the USPHS Division of Industrial Hygiene for the protection and improvement of the health of the working population have expanded with the growth of the war industries. USPHS is responsible for developing industrial hygiene services in War Department establishments, including munitions plants owned by the government but operated by private concerns. In 1942, 65 such plants, employing 300,000 workers, were served.

There are approximately 500 government-employed industrial hygienists in the United States, in addition to the safety personnel of the Bureau of Mines and the Department of Labor. The industrial hygiene program is concerned with the health of the workers. Thirty-six states, four cities, two counties, the TVA, and the District of Columbia now have industrial hygiene units, which function under the leadership of the USPHS Division of Industrial Hygiene.

Each year these agencies make between 6,500 and 7,500 investigations, which now involve a growing number of war workers.

The laboratories of the Division of Industrial Hygiene have 100 projects under way, all bearing directly on the war effort. Most of this work involves the study of materials used in making munitions, airplanes, tanks, and other instruments of war. The object is to discover what harmful effects these materials have, and how to prevent them from causing sickness and deaths in war plants.

NURSE SERVICE

For the past two years, the Public Health Service has been attempting to increase the supply of nurses in the country. The Bolton Act, passed on June 4, 1943, has made possible an extensive program for the training of nurses for the armed forces, governmental and civilian hospitals, health agencies, and war industries. Under the provisions of the act, a new Division of Nurse Education has been established within the Public Health Service. Student nurses receiving their training under the federal plan will be members of the newly formed U. S. Cadet Nurse Corps. They are to receive free professional training, maintenance, attractive uniforms bearing the insignia of the service, and stipends ranging from $15 to $30 a month. The war nurse training program calls for the recruiting of 65,000 trainees in 1943. It is expected that by 1945 some 160,000 students will be receiving aid under the terms of the act, including 65,000 first-year students, 50,000 second-year students, 38,000 third-year students, 5,000 nurses in post-graduate work, and 2,300 taking refresher courses. Some 1,200 accredited schools of nursing in the United States will participate in the program.

PUBLICIZING HEALTH

USPHS, the Children's Bureau, and other federal agencies issue publications which deal with health matters ranging from typhoid fever to the suitability of new plastics for a baby's rattle. State health departments alone distributed 3,680,000 of the 5,205,215 health pamphlets published under government auspices in 1941.

NUTRITIONAL NEEDS STUDIED

Standard diets, scaled to basic nutritional needs, are put before the public by scores of agencies. Sixteen food companies recently cooperated in creating Nutrition Foundation, Inc., to develop and apply the science of nutrition.

Cooperative field studies are conducted by USPHS to perfect methods for diagnosing subclinical forms of specific nutritional deficiencies. Pellagra, beri-beri, and scurvy are all readily recognized, and a specific for each has been found in the vitamin group, but less pronounced forms of vitamin deficiency may long pass unheeded. Vitamin extracts (see page 134) are of recognized value in treating nutritional deficiencies, and are sometimes recommended as an adjunct to the diet.

MENTAL ILLS A PROBLEM

While the drive on physical ills goes on, mental illness is still one of the major public-health problems. There are 750,000 patients with mental and nervous diseases in American institutions. It costs $250,000,000 a year to care for them. Mental hygiene clinics for children have been established in many cities, but much remains to be done in preventive psychiatry. (See page 135.)

Medical science and public health, linked in a flexible bond, are working together for the improvement of man, in mind as well as in body. Within a decade higher levels of general fitness have been attained, and the promise of better things to come rests in the abundant resources for prevention and cure in the United States. Public and private health agencies are equipped to put this invaluable knowledge at the service of all the people.

* * *

ECONOMY

AGRICULTURE

"The will and skill of farmers have brought a production victory when we might have suffered a production setback.

—Claude R. Wickard,
Secretary of Agriculture

American farmers made history in 1942. They delivered a larger and better-balanced food supply than ever before in a single year. They did it, moreover, without decreasing the productivity of the land, or putting the plow to unsuitable soil as they did in 1914-18.

It took 12 million pairs of hands to do the job: six million farmers, members of their families, and three and one-quarter million hired workers. They were assisted by a national crop control plan which keys the production of each farmer to predetermined need. Weather favored them. And they had the benefit of improved seeds, plants, and animals which had been developed over a period of years, largely through scientific research activities of the U. S. Department of Agriculture—USDA to the farmer.

Agricultural production for 1942 was 13 percent over that of 1941—an excellent year—and 28 percent above the average for 1935-39. Livestock, milk, poultry, and egg records were upset. Peanut and soybean yields climbed to new levels. Even the record 1920 production of corn (maize) was exceeded.

It is estimated that it will take one-quarter of all the food produced in the United States in 1943 to supply the U. S. armed forces and her fighting Allies. Americans at home are glad to do with less in order to fill these needs.

By April 30, 1943, the amount of agricultural products transferred to America's Allies under lend-lease accounted for 15 percent of the $11,102,000,000 total. In the first four months after the landings in North Africa, $1,500,000 worth of milk was sent to that region, $200,000 worth of wheat, $4,300,000 worth of flour, $4,200,000 worth of sugar, and $1,800,000 worth of tea. By November 11, 1943, more than 298,000 tons of vital civilian supplies valued at 48 million dollars had been shipped to North Africa.

Secretary Wickard, who was Food Administrator from

1942 PRODUCTION[1] AND 1943 GOALS—CROPS

Crop	Average 1930-39	1941	1942 goal	1942 production	1943 goal
WHEAT #	745,575,000 bushels	943,127,000 bushels	793,000,000 bushels	981,327,000 bushels	651,000,000 bushels
***CORN # #	2,307,452,000 bushels	2,677,517,000 bushels	2,675,000,000 bushels	3,175,154,000 bushels	2,834,000,000 bushels
COTTON # # #	13,246,000 bales	10,744,000 bales	12,000,000 bales	12,982,000 bales	11,300,000 bales
***BARLEY	226,460,000 bushels	362,082,000 bushels	360,000,000 bushels	426,150,000 bushels	392,000,000 bushels
OATS	1,016,061,000 bushels	1,180,663,000 bushels	1,369,540,000 bushels	1,358,730,000 bushels	1,137,650,000 bushels
***HAY	78,733,000 tons	94,238,000 tons	94,000,000 tons	105,328,000 tons	94,500,000 tons
***RICE	45,712,000 bushels	51,323,000 bushels	65,000,000 bushels	66,363,000 bushels	66,800,000 bushels
***SOYBEANS	36,385,000 bushels	105,587,000 bushels	153,000,000 bushels	209,559,000 bushels	216,000,000 bushels (harvested for beans)
***PEANUTS	1,067,438,000 lbs. (picked & threshed)	1,476,845,000 lbs. (picked & threshed)	3,750,000,000 bushels (not threshed)	2,504,440,000 lbs. (picked & threshed)	3,712,500,000 bushels (picked & threshed)
***FLAXSEED	11,252,000 bushels	32,285,000 bushels	36,000,000 bushels	40,660,000 bushels	39,875,000 bushels

*** Crops for which new high records were set in 1942.
# Wheat carryover at the end of current marketing year (July 1, 1943) estimated at 618,000,000 bushels.
# # Corn carryover at the end of current marketing year (Oct. 1, 1943) estimated at 400,000,000 bushels.
# # # Cotton carryover at the end of current marketing year (August 1, 1943) estimated at 10,687,000 running bales.
1 Actual goals for crops were in acres; estimated production given in table.

1942 PRODUCTION AND 1943 GOALS—COMMODITIES

Commodity	Units Produced — 1942	1943 Goals
MILK	120,000,000,000 lbs.	122,000,000,000 lbs.
CHICKENS	3,118,000,000 lbs. (dressed weight)	4,000,000,000 lbs. (dressed weight)
EGGS	4,500,000,000 dozen	4,780,000,000 dozen
CATTLE & CALVES	10,160,000,000 lbs. (dressed weight)	10,910,000,000 lbs. (dressed weight)
SHEEP & LAMBS	1,009,000,000 lbs. (dressed weight)	990,000,000 lbs. (dressed weight)
HOGS	10,800,000,000 lbs. (dressed weight)	13,800,000,000 lbs. (dressed weight)
LARD	2,500,000,000 lbs.	3,400,000,000 lbs.

December 6, 1942, to March 25, 1943, was largely responsible for allocating food for domestic, military, lend-lease, and other needs. He directed all programs for the production and distribution of U. S. foodstuffs and determined the need and amount of food available for civilian rationing. These functions are now being carried out by Marvin Jones, the present War Food Administrator.

For, by executive order dated March 26, 1943, the President consolidated into one unit the Food Production Administration (except the Farm Credit Administration), the Food Distribution Administration, the Commodity Credit Corporation, the Office of Materials and Facilities, and the Extension Service of the Department of Agriculture. This new agency was then named the Food Production and Distribution Administration, but an amendment to the executive order dated April 19, 1943, changed the designation to War Food Administration. The agricultural procurement functions of the Administration were transferred to the FEA on October 6. The War Food Administrator is appointed by and is directly responsible to the President.

The primary responsibility of the War Food Administration is to assure an adequate supply and efficient distribution of food to meet war and essential civilian needs. It exists in the framework of the Department of Agriculture.

The Secretary of Agriculture is in charge of the Agricultural Research Administration, the Farm Credit Administration, the Forest Service, the Rural Electrification Administration, and the Bureau of Agricultural Economics. Staff agencies serve both the Administrator and the Secretary as required. The respective duties and functions of these officials have been so defined that each has authority to exercise any and all powers vested in the other, by statute or otherwise.

Just before his appointment as Food Administrator in December 1942, Secretary Wickard announced the farm food goals for 1943, which call for more meat and milk, more poultry and eggs, more of certain vegetables and fruits than were produced in 1942.

Farmers will strive to supply 2 billion additional pounds of milk in 1943. The 1942 production was approximately 120 billion pounds.

They will also strive to produce 3,700,000,000 pounds, or nearly 17 percent, more meat. The 1942 total was about 22 billion pounds. The 1943 schedule calls for 15 percent more pork against needs of the armed services and lend-lease.

The 1942 egg production reached the new high of 4,500,000,000 dozens. But farmers will attempt to better that figure by increasing the number of laying hens in their flocks seven percent. They have been asked to help increase the production of chickens for table use by 28 percent (dressed weight) in 1943.

The additional livestock and poultry will require more grain. Inasmuch as Indian corn (maize) is the principal feed grain used in the United States, farmers have been asked to plant nearly four million more acres of corn in 1943 than in 1942. The goal for grain sorghums is nearly one million acres larger than the acreage planted in 1942. There is plenty of wheat on hand which can be fed to livestock.

Plantings of oil-producing soybeans, peanuts, and flaxseed will be increased by more than two million acres in 1943. These important increases in the feed and food supply will be made possible, in part, by taking acreage out of production of wheat and short-staple cotton.

Farmers could not hope to deliver these large amounts of specified foodstuffs without a production blueprint to guide them. They have it in USDA's production and distribution plan. Reaching into every rural community, it assigns each farmer his voluntary task and provides financial assistance where necessary.

When he announced the production goals for 1943, Secretary Wickard also announced price supports for many major commodities and pledged USDA assistance in maintaining prices for meat, dairy, and poultry products which would provide incentives for maximum production. He outlined USDA plans for easing the farm labor situation and assured farmers that programs of financial and technical assistance will be continued.

"This is the most crucial and important task American farmers have ever been asked to perform," said Secretary Wickard, who has a practical knowledge of the difficulties involved because he is a farmer himself.

FARMERS AND FARM LANDS

Although they work in such cooperation with the government, American farmers are independent people, zealous guardians of their personal rights under a democracy. They speak their minds as individuals and as a group. They have their own organizations of which the oldest and probably the largest is the Grange—the National Grange and Patrons of Husbandry.

Many farmers are descendants of the pioneers. Some are sons or grandsons of farmers who went West when the government, in 1862, inaugurated a policy of giving free land to settlers and when the railroads began to dispose of millions of land-grant acres. Today there is virtually no free land left.

In fact, the amount of good farm land available in the United States is being reduced by soil erosion from which only about 130 million acres of crop land and potential crop land are free. There are about 462 million acres of good arable land, of which about 342 million acres were in crops in 1942.

The productivity of wisely used land has been increased by fertilizers, by the use of disease-resistant animals and plants, and by pest control.

Also, ever-increasing use of machinery has made it possible to produce more with less hired labor. There are more than 1,750,000 tractors on farms today. Combined harvester-threshers are in general use. Mechanical pickers and diggers help to harvest major crops. In the not far distant future mechanical cotton pickers, already a reality, may replace much hand labor.

All these factors, plus the development of American industry, help to explain the fact that whereas 70 percent of the American population was engaged in agriculture a century ago, less than 25 percent of the 135 million people of the United States, or approximately 30 million of them, today depend for a livelihood on agriculture. The trend is toward increased production from less land with less labor.

The census of 1940 lists more than six million farms in the United States. But 87 percent of the production for market comes from about two million so-called commercial farms, usually of 100 acres or more. Much of the wartime increase in production, however, has come from the small and medium-size farms since most of the larger farms were already producing at near peak capacity. The owners or tenants (and their families) do most of the work on the commercial farms with the help of machinery and some hired labor during the rush seasons. These operators constitute the most dynamic element in American farming—men and women, many of them agricultural college graduates—who are quick to adopt new methods and cooperate with the community and nation in land-use planning.

Another two million farm families—subsisting on gross incomes of between $400 and $1,000 a year—hire little or no labor. They work many of the middle-size farms of the South, and smaller, less productive, less mechanized farms elsewhere.

Two million farms, many of them in the South, are too small for other than part-time operation, or are located on unsuitable land. On them agriculture is often incidental to other occupations and sources of income, and the Farm Security Administration helps out with small loans and technical guidance which amounts to vocational training. The farmers report gross incomes of about $400 a year; they send an average of only $100 worth of produce to market annually. Their production represents but three percent of the nation's marketable crops.

Since the wartime farm expansion of 1914-18 the trend has been toward commercial farms which employ no more labor than smaller land units do. Between 1930 and 1940, in the highly mechanized Corn Belt states of Ohio, Indiana, and Illinois, more than 16,000 farms lost their separate entities through realignment of land holdings, while 7,000 new farm units with from 260 to 1,000 acres of land came into being.

AREAS OF FOOD PRODUCTION

Though agricultural regions are usually designated according to their chief crops and produce, most areas combine specialties. Thus many small grain farmers of the Great Plains are meat producers as well; corn farmers also raise hogs; and dairying and poultry raising are common to most areas.

DAIRY PRODUCTS

These come in greatest quantity from the states adjacent to the Great Lakes. Here highly mechanized farms with large dairy herds predominate. Cheese, butter, milk, eggs, and poultry for lend-lease and military and domestic consumption come mostly from this area. The Lake states are also large producers of feed and alfalfa hay—crops which mean more dairy products and meat.

Much of the land near large population centers supports commercial dairy enterprises. The Northeast, with a third of the nation's consumers almost at its doorstep, engages in dairy and poultry farming, truck gardening, and fruit growing. The Pacific Northwest also has a large dairy industry.

CORN AND HOG PRODUCTION

This type of production centers in the fertile Corn Belt, extending from Ohio westward into Kansas and South Dakota and northward through Minnesota. Here, in what is probably the most prosperous agricultural area of the United States, scientific production results in yields measurable in millions of dollars.

In the United States corn production and hog production are usually closely associated since corn is the principal feed for hogs, and farmers usually plan the number of hogs they raise according to the relative prices of corn and hogs. When corn is high, it is sold direct; when pork is relatively high-priced, it is profitable to raise large numbers of hogs and feed the corn to them. Corn is the basic product in either case, and large acreages are always raised in the Middle West.

The large amount of hybrid corn (maize) grown in the section was an important factor in the 1942 record corn yield of more than 35 bushels per acre. Four Corn Belt states had average yields of more than 53 bushels, with one state reaching an average of 61 bushels.

Planting of corn hybrids with higher yield per acre is releasing acreage once devoted to corn for other production, particularly soybeans, cultivated hay, and grass—all essential to increased amounts of dairy products and meats. Diversification gives the corn and hog section greater economic strength and resilience.

WHEAT

Wheat is grown in many parts of the country but in largest quantities in the Great Plains region, which stretches from Oklahoma northward through North Dakota and westward along the Canadian border to the Pacific Northwest. Parts of the Plains region were first cultivated during 1914-18 and the period immediately following, when the government called on farmers for vast wheat production. Plowing of this grass-bound soil resulted, in years of extreme drought, in great dust storms which drove thousands of farmers from their land and homes.

Since 1938 about 15 million acres have been withdrawn from wheat production under crop-adjustment and soil-conservation controls. Some acreage is being changed from wheat to corn and other feeds, and some is being returned to grasslands for sheep and cattle grazing. (See *Conservation.*)

COTTON

Cotton, the nation's number one cash crop (meat and dairy products excluded), is produced in a huge area spreading over 13 Southern states, from Virginia southward and westward into Texas and Oklahoma. Here one-third of U. S. farmers live, with cotton and tobacco as their best and second-best cash crops.

War has blocked the outlets for a large part of the South's principal commodities. But in the long run no section stands to benefit more from war's acceleration of long-term agricultural planning. The South is of necessity changing from an impoverishing single-cash-crop system to the development of varied food and feed crops needed for better nourishment of its rural and urban population. An example of this diversification is the unparalleled increase in peanut acreage.

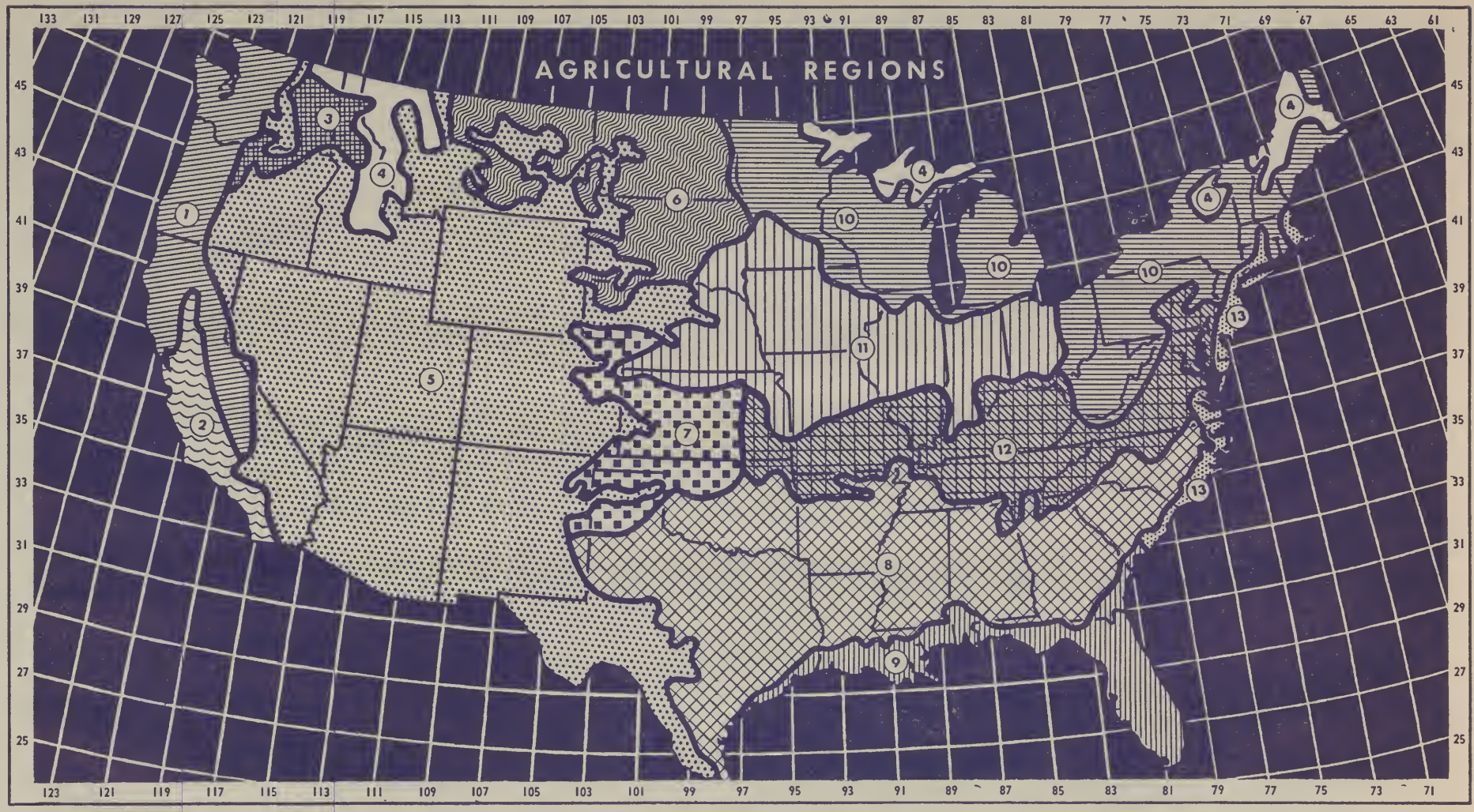
Before war's outbreak in Europe, Southern farmers were already shifting from their habitual crops and were cooperating more and more to improve and conserve soil. Between 1930 and 1940, acreage of cotton, wheat, and tobacco—all export crops with dwindling markets—was reduced 20 million acres, an amount equal to one-fifth of the total crop land harvested at that time in the 13 Southern states.

The largest producers of the South still call their cotton and tobacco lands plantations. But where the West begins, somewhere in the Dakotas and Kansas and on the Texas rangelands, farming becomes ranching.

BEEF-CATTLE AND SHEEP RAISING

Known as ranching, beef-cattle and sheep raising requires large tracts of private or public rangeland. For sustenance, each head of cattle needs from 12 to 320 acres of grazing land, depending on the quality of the range. Approximately 265 million acres of grazing land sustain the West's livestock production. A cattle ranch may consist of as many as 100,000 acres. Many ranches are only headquarters for livestock operations on public pasture, of which there are about 220 million acres.

Cattle feeding (fattening) is important in the eastern part of the Plains area and also in the Corn Belt.



(1) NORTH PACIFIC FOREST, HAY, AND PASTURE REGION
(2) PACIFIC SUBTROPICAL CROPS REGION
(3) COLUMBIA PLATEAU WHEAT REGION
(4) FOREST AND HAY REGION
(5) GRAZING AND IRRIGATED CROPS REGION
(6) SPRING WHEAT REGION
(7) HARD WINTER WHEAT REGION
(8) COTTON BELT
(9) HUMID SUBTROPICAL CROP BELT
(10) HAY AND DAIRY REGION
(11) CORN BELT
(12) CORN AND WINTER WHEAT BELT
(13) MIDDLE ATLANTIC TRUCKING REGION

The United States may be divided agriculturally into two parts, the East and the West, on the basis of the prevalent use of the land, whether for crops or for pastures. The dividing line approximates longitude 103°, except that it trends southeasterly in Texas and northwesterly in Montana. The East has mostly a humid or subhumid climate; the West an arid or semiarid climate, except in the North Pacific region, parts of the Columbia Plateau, and at the higher altitudes in the mountains. The East is divided into eight regions (excluding the Forest and Hay Belt) on the basis of the dominance of a certain crop or kind of farming, which is the result largely of latitude and temperature conditions. The West is divided into four regions on the basis of the use of the land for grazing or crops, which is determined largely by altitude and rainfall.

Most of the Western lands receive less than 20 inches of rainfall yearly. Montana, for instance, averages less than 14 inches. (New York State has 43.) In these arid and semiarid regions, irrigation is essential to crop farming. Seventeen Western states contain 20 million irrigated acres. In such areas winter feed is produced and livestock wintered—of increasing importance on the Western Plains.

FRUITS AND VEGETABLES

Fruits and vegetables as well as the feeds on which cattle and sheep fatten, are produced in large quantities on the irrigated lands of the West. But also two-thirds of the citrus fruits come from the Southwest, with Arizona, Texas, and California the large producers. (Florida supplies the other third.) Irrigated lands grow melons, apricots, cherries, peaches, apples, 90 percent of the sugar beets, 45 percent of the rice, and 25 percent of all tomatoes.

SUMMARY

The important changes in the U. S. crop map are: the development of irrigated farm land; the considerable decrease, under crop-control programs, of the acreages of wheat, cotton, and tobacco (surplus crops); the increased production of vegetable-oil crops, dairy products, livestock and poultry, and the feed which they require.

Most of these changes are helping produce sufficient food of the right sorts to nourish all the people. They result from close collaboration between farmers and national planners who are thinking of future as well as of present needs.

Farmers have cooperated increasingly with government programs in the last ten years, but even the exacting wartime production programs have not deprived them of any of their democratic privileges, and cooperation remains a matter of personal choice.

BACKGROUND OF AGRICULTURAL PLANNING

In 1933 President Roosevelt appointed Henry A. Wallace (now Vice President) his Secretary of Agriculture with the task of articulating and implementing a farm program. Wallace is a farm-born Iowan, former publisher of a farm paper, like his grandfather and his father, Henry C. Wallace, who was the Secretary of Agriculture under President Harding in 1921.

The elder Wallace sought to help farmers at a period when they were beginning to reap the whirlwind from the patriotic but planless wartime over-expansion of 1914-1918. They kept trying to offset declining prices by still more production—which glutted markets at home and abroad.

Depression, which had been foreshadowed on the farms since the collapse in farm prices of 1921, began in 1929. Congress passed relief measures, but they were only partly effective, for no method of controlling farm prices on a national scale had been established. Individual farmers, most of them small producers, could not afford to withhold produce for higher prices. They had no means of restricting production by concerted action.

Certain older measures were somewhat effective in relieving farm distress. For instance, the federal land banks, established by the Federal Farm Loan Act of 1916, were foundation stones for the Farm Credit Administration set up in 1933. These banks supply farm mortgages and short-term production credit through local agencies. They also finance cooperative marketing and supply-purchasing associations. The Commodity Exchange Act of 1922, aimed at eliminating harmful market manipulations, authorized the regulation of dealers in future contracts covering many staple products. The Cooperative Marketing Act of 1926 created an agency to conduct research into cooperative associations in an effort to increase their efficiency.

And in 1929 the Agricultural Marketing Act, fostered by President Hoover, authorized a 500 million dollar fund for loans to cooperative associations and for aid in preventing commodity price fluctuations through orderly marketing.

The Federal Farm Board, set up to administer the act, exercised no effective control over production. Farmers continued, with the best of intentions, to overproduce cotton, wheat, and corn in a futile attempt to make up for low prices. Their financial status grew progressively worse and tenure of their land more precarious. In 1932, 10,039 farm mortgages were foreclosed.

THE FARM PLAN, 1933-1938

The first task of the government was to bring prices and production into alignment. Farm prices had to be raised, and farmers prevented from swelling the already large surpluses created by overproduction in the face of declining markets.

Henry A. Wallace advocated benefit payments by the federal government for withdrawal of land from use for certain surplus crops and curtailment of livestock raising, particularly hogs. This principle was embodied in the Agricultural Adjustment Act of 1933. Loans, marketing quotas and agreements, export subsidies, and government purchase of some surpluses—all were resorted to to bring markets and production more nearly into line.

In 1934 three million farmers had AAA contracts affecting more than half the farm land of the country. Plantings of the surplus crops—cotton, wheat, corn, tobacco, and some others—were reduced, and the government purchased and slaughtered for relief and other purposes some six million pigs and hogs. In part because of the AAA farm program, in part because of government payments and drought, and in part because of the devaluation of the dollar, the national farm income increased from $5,562,000,000 in 1932 to $8,688,000,000 in 1935. In January 1936 the Supreme Court decided that certain control provisions of the AAA were unconstitutional and voided them.

Almost immediately Congress passed a substitute Soil Conservation and Domestic Allotment bill, which shifted the emphasis from acreage control to soil conservation. Although this act did promote better use of land, the heavy production of wheat and cotton in 1937 demonstrated its inadequacy in controlling surpluses. So in 1938 another Agricultural Adjustment Act took effect which combined control of surpluses with soil conservation, parity payments, and crop insurance.

THE AAA PROGRAM

The program of the Agricultural Adjustment Agency is directed primarily at adjusting national farm production to wartime needs, while encouraging practices which conserve soil resources. Administered through local farmer committeemen who are elected annually by cooperating growers, the national program is adapted to individual farms through the voluntary cooperation of farmers.

Wartime demands have shifted emphasis placed on various phases of the AAA program. The program in 1944 will have three major phases:

(1) Farmers will be guided and assisted in producing up to national crop goals and in carrying out conservation measures which enable their land to contribute most to national farm production. Program payments will be made

only in connection with soil- and water-conservation practices which will increase yields now and maintain fertility for future production.

(2) Marketing quotas in 1944 will be in effect for flue-cured tobacco. Farmers voted in the fall of 1943 for the same device to be used in 1944 in marketing burley tobacco. (Available as a means of allocating the market among growers, marketing quotas, with penalties for excess marketings, may be used only when approved by two-thirds of the producers of a crop voting in referendum.)

(3) The ever-normal granary, through which reserve stocks are held for emergency use, will continue to be available through the Commodity Credit Corporation. The foundation of the granary is the commodity storage and loan program which AAA committees help to administer in the field.

EVER-NORMAL GRANARY

Commodities held by the government as security against Commodity Credit Corporation loans, or accepted as premiums for crop insurance, are stored in private or government warehouses until needed, or are placed under seal on the farms where they are produced.

Commodities so stored constitute national reserves or carry-overs designed to assure an ever-normal supply and stabilized prices. Exceptionally good years are balanced against the bad, thereby minimizing price fluctuations.

The principle of the ever-normal supply, or ever-normal granary (so called because it is readily applicable to stored grains), is basic in the farm plan of the nation. It has increased the security of the farmer and, along with crop insurance, released him to a large degree from fear of his old enemy, the weather.

COMMODITY CREDIT CORPORATION

This corporation finances the carrying and orderly marketing of farm products through loans to commercial producers against commodities, and finances purchases by the Agricultural Marketing Administration (see below) for lend-lease. The foreign food procurement program of the Corporation was taken over by the FEA on October 6, 1943.

The terms of commodity loans and other support programs largely determine prices. Under October 1942 legislation, commodity loans on cotton, rice, tobacco, and peanuts are made at 90 percent of parity.* The President is given discretion to hold the loan rate for wheat and corn at 85 percent of parity, where this is necessary to prevent increases in prices of feed for livestock and poultry. (See also War Food Administration under Dept. of Agriculture in Government section.)

FOOD DISTRIBUTION ADMINISTRATION

The Food Distribution Administration combines the work formerly carried on by the Agricultural Marketing Administration, the Sugar Agency, functions of the Office for Agricultural War Relations concerned with distribution, regulatory work of the Bureau of Animal Industry, the Food Division, and other food units of the War Production Board, and the functions with respect to nutrition of the former Office of Defense Health and Welfare Services in the Office for Emergency Management.

The Food Distribution Administration's job is to formulate and carry out programs that will result in the food produced on American farms being available at the place it is needed, at the right time, and in the proper form. Of the total wartime food supply management job, the segment for which the FDA is responsible starts when the food leaves the farm and continues (with the exception of price control and rationing) until the food reaches the consumer.

The FDA allocates available food supplies among the various claimants—the armed forces, the civilian population, and the Allies; purchases food to meet government and lend-lease requirements; administers food orders; promotes economies in marketing and distribution; conducts marketing services; administers regulatory statutes; and carries out programs aimed at improving the nutrition and well-being of civilians. (See also War Food Administration under Dept. of Agriculture in Government section.)

FARM SECURITY ADMINISTRATION

Set up in 1937, this agency provides lower-income farm families, who would not be aided otherwise, with financial assistance and training which enables them to raise their living standard and to increase their production of needed crops.

Since 1937 about a million small-farm families have acquired needed equipment and the technical skill to operate it. FSA loans running from $100 to $800 are made for purchase of cows, hogs, chickens, seeds, and farm machinery.

A limited number of FSA loans on 40-year repayment terms are also made to farm tenants who wish to purchase farms of their own. Many of them are doing so on a variable payment-purchase plan which enables them to pay more in years of large returns and less in years of low returns. The government is eager to increase the number of owner-operated farms, which now constitute only 60 percent of the farms of the country.

To meet needs of the small farmer, FSA advocates a kind of live-at-home production which improves the family's nutritional standard and provides feed for livestock. The plan stresses cash income from diversified sources and the use of sound soil-building programs.

FSA makes loans to small farmers to purchase jointly modern machinery and improved breeding stock. Formation of more than 17,000 of these small cooperatives has tended to increase the producing power of approximately 165,000 farmers.

More than 150 homestead developments, started in most cases by earlier agencies and operated by FSA, are being sold to the occupants. Ninety of them are on a community basis, with farm homes centered around schools, stores, and cotton gins. Other homesteads consist of scattered farms in areas already provided with adequate community facilities. Most of the homesteaders are full-time farmers.

Nearly 100 camps for seasonal farm labor were maintained by FSA in May 1943. These camps have been transferred to the Office of Labor in the War Food Administration for use in the farm labor program. The seasonal labor camps provide shelter, sanitation facilities, recreation, and medical care for farm laborers and their families. Some of the camps, particularly the newest ones, are mobile.

RURAL ELECTRIFICATION

Farmers may be handicapped by factors other than too small or unproductive farms. They may be at a disadvantage because they do not have access to electric power.

When the Rural Electrification Administration was created in 1935 less than 11 percent of U. S. farms were served by electricity. Now the percentage is more than 37.

Farm homes achieve new comforts, farm enterprises new efficiency, through use of electric current. REA has helped widen the availability of power. The wartime job of REA cooperatives is to supplement the farm labor supply by

* Parity price is the price which will give to a commodity a purchasing power in terms of articles that farmers buy equivalent to the purchasing power of the commodity during a selected base period. The base period used by the USDA is generally from August 1909 to July 1914. In the case of tobacco and potatoes, the period used is August 1919 to July 1929.

making kilowatts perform scores of labor-saving tasks. Electric power in rural areas has facilitated increased production and processing of better-quality food. It has also made possible the utilization of many small plants for war production.

Electricity is a versatile farm helper. It works in house and barns, and even in the fields where, distributed by single wires, it takes the place of fencing. It pumps water, tends the chicks, runs the feed grinder and the silage cutter, mixes feeds, and in the dairy does everything from milking the cow to running separator, churn, and cooler. A farmer can milk twice as many cows by electricity as he can by hand. Milking machines are used on about 600,000 farms with herds of 10 or more dairy cows.

Even tiny farms have electric chick brooders. Most farmers purchase their chicks from one of 10,000 commercial hatcheries, at least 10 of which can bring a million chicks out of the electric incubators on a single date.

By hoisting hay, chopping and mixing rations, electricity helps to lighten the labor of animal feeding—a subject, incidentally, of which the American farmer knows much more today than formerly. (See also *Power.*)

COOPERATIVE EXTENSION WORK

In every major agricultural county there is an office of cooperative extension work in agriculture and home economics. The service is cooperative as between the Department of Agriculture, the state Agricultural College, and local supporting bodies. Of a total of about 9,000 extension workers who are professionally trained in agriculture or home economics, 2,900 are resident county agricultural agents; 800 are resident assistant county agricultural agents; and 2,000 are resident county home demonstration agents.

Extension work has become a force for better farming and improvement in farm living. The resident agents encourage farm families to increase efficiency in production and marketing and to improve living standards through application of research, and better farming practices. They do this through community demonstrations, personal visits, voluntary neighborhood leaders, and other means of contact. In addition they help organize and supervise 4-H Boys' and Girls' Clubs, the total membership of which now exceeds 1,600,000. These 4-H Clubs are the proving ground for the farm men and women of America's future.

County agents not only keep farmers posted on scientific developments and suitable farm practices, but also help them keep abreast of new information regarding government farm programs and all current matters of interest in the field of agriculture.

It is through AAA, CCC, and other agencies that the Department of Agriculture (USDA) carries out the nation's farm plan and conducts the nation's farm business.

The AAA program is administered locally by county and community farmer committees whose membership totals 150,000 (including alternates), elected annually by their fellow farmers. Not only are these committees invaluable to the operation of the AAA program but they also are being used by USDA and other federal agencies to reach farmers for many war campaigns. State and county AAA committee chairmen are likewise chairmen of state and county USDA war boards.

The AAA program, keystone of national farm planning, is now deeply imbedded in agricultural economics and farm practices in the United States. Eighty percent of the crop land of the country, almost 365 million acres, comes under it. Farmers have never worked so closely with their county, state, and federal governments as they do now. Nor have they ever been able to participate more effectively than now in the agricultural planning sessions and the marketing quota balloting of their communities.

With administrative and land-use changes have come others, made possible by improvements of science and technology. Technological changes, and their economic and social consequences, affect agriculture at so many points and so many levels that planning cannot always keep up with them. In the main, USDA has been able to cushion farmers and farm economy against the full impact of revolutionizing innovations. Through the Bureau of Agricultural Economics, USDA's planning arm; through the educational facilities of the Extension Service, which reaches into every farm community; and through the Farm Security Administration, which assists and counsels disadvantaged rural people, the government makes the transitions as easy as possible so that science and invention may be utilized for an improved national food supply, with a minimum of dislocation.

RESEARCH

The U. S. Department of Agriculture works closely with industrial and commercial groups which serve agriculture: the makers of farm machinery, the seed growers, fertilizer manufacturers, and food processors. But the full force of USDA influence is wielded through its own research and experiment facilities, which cover the field of farmers' activity and problems.

USDA employs soilsmen, seedsmen, insectmen, geneticists, veterinarians, and plant and animal husbandmen, home economists, chemists, engineers, foresters, statisticians, and fiscal and social economists. Some of the nation's greatest authorities in certain research fields are in USDA service.

The little army of scientists and technicians has, in several crises, saved regional farm industries from extermination by bringing pests and diseases of plants and animals under control. They are mapping the agricultural land of the nation acre by acre and analyzing it for usefulness. They have reclaimed much of the dust bowl as part of the program to build and conserve soil. They have classified the soil types of the country—8,000 of them. And they have helped to perfect many farm machines, including the revolutionizing sugar-beet topper and lifter just coming into use, which performs 35 man-hours of labor in one hour.

AGRICULTURAL RESEARCH ADMINISTRATION

This agency plans and supervises most of USDA's scientific research activities through bureaus servicing specific fields. There are bureaus of plant industry, animal industry, dairy industry, entomology and plant quarantine, home economics, agricultural chemistry and engineering, as well as the Office of Experiment Stations.

Work goes forward in many USDA laboratories in Washington, D. C., also at nine Bankhead-Jones Research Laboratories, at four regional laboratories which specialize in utilization of farm products, and at the Beltsville Research Center in Maryland, unusually well equipped for agricultural research. This work is carried on in cooperation with experiment stations, with land-grant agricultural colleges in every state, and with industrial research institutions.

Some 800 farmer-organized districts, located in all but one state and covering about 400 million acres, are aided

by the Soil Conservation Service. The cooperation of around two million farmers is involved.

The Forest Service maintains 12 forest and range experiment stations as well as the Forest Products Laboratory at Madison, Wisconsin, where experiments are conducted in developing wood substitutes for other materials and adapting wood for war uses.

Information as to all phases of USDA activity is furnished to farmers by the USDA Office of Information through press, radio, and the Extension Service. USDA publications deal with many thousands of topics and most of them are free to the farmer. The Office of Information operates what amounts to a vast adult education service for the millions of people whose livelihood depends on agriculture.

IMPROVED LIVESTOCK

The 22,000,000,000 pounds of meat produced in 1942 would not have been possible without new knowledge of animal dietary needs—the quantities and kinds of minerals and vitamins, of protein and energy foods required. Thanks to research, the livestock producer today can feed his animals properly.

Better livestock breeding goes along with better animal feeding. The number of eggs produced per hen and the number of quarts of milk per cow have steadily increased. Animals are being bred for special purposes, such as beef-cattle adapted to warm southern regions; bacon-type and lard-type hogs; small turkeys for small families. Much more can be accomplished along these lines. For instance, bringing all dairy cows up to dairy herd improvement-association standards would greatly increase annual butterfat production without enlarging herds or employing more farm labor.

IMPROVED PLANTS

Scientists have also learned how to feed plants and breed them for special characteristics which make them more productive as well as more resistant to disease, drought, and frost.

Soybean development in the United States is a triumph for the plant breeders. Geneticists have produced strains with superior oil and protein content, in addition to special varieties for hay and for vegetable use. Total U. S. soybean production was only 13 million bushels in 1933. It was more than 200 million bushels in 1942.

Plant breeders have many other successes to their credit, too. Curly top, an insect-transmitted disease, threatened to wipe out sugar beets in parts of the West . . . but they learned to control it. Development of the marglobe tomato, highly resistant to wilt and nailhead rust, saved the tomato industry of Florida. This tomato is now the variety most widely planted in the United States. Lettuce resistant to wilt has been bred, with spectacular results. Cabbage yellow has been practically eliminated by plant breeding. Mildew-resistant cantaloupe strains are now in use.

The development of hybrid corn in the United States—another achievement of plant breeding—has had marked effect on production and land use.

The first hybrid corn was produced experimentally many years ago, but only in the past few years has its seed been available commercially. Expansion in hybrid-corn acreage has been phenomenal. From half a million acres in 1935 it has reached a total of a quarter of the entire national corn acreage, or more than 22 million acres.

Iowa corn-yield tests, conducted in 12 districts over a 14-year period, show that hybrid corn yields an average of 12.8 percent more than open-pollinated varieties. Some of the best hybrids in commercial production exceed yields of other corn by as much as 30 percent.

Hybrid corn is now available in ample seed carry-overs, and its resistance to disease and insect pests is constantly being improved.

The development of wheat hybrids that are rust- and smut-resistant has been less spectacular, but much has been accomplished.

DEHYDRATED FOODS

USDA has taken the lead in developing food dehydration processes which make it possible to send tremendous quantities of foodstuffs to fighting men and the United Nations in a sixth of the shipping space ordinarily required. Eggs and milk are three-quarters water. Some vegetables contain as much as 90 percent water. Dehydration removes the water with little effect on the flavor and nutritive value. Water is added to the vegetables again before they are used. One boatload of dehydrated eggs means nourishment for millions. Dehydrated milk is the most concentrated food available.

More than 150 American dehydrating plants are in operation and more are under construction. Dehydrating processes have been developed by USDA or by private industry in collaboration with USDA scientists.

Egg-drying, with a production capacity of 235 million pounds of eggs a year, is one of the most intensively developed of the dehydrating processes. Milk is another, then vegetables and fruits and meat.

Eggs are dehydrated by a process which sprays them through hot air. Dehydrated eggs look like yellow face powder of smooth, silky texture and taste like freshly cooked hard-boiled eggs. They can be scrambled, used in custard, in baked dishes, and in other ways. Dehydrated meat can be used for many dishes in place of ordinary ground meat. Dehydrated mashed potatoes are indistinguishable in taste or appearance from the fresh vegetable. Cabbage and carrots, rich in vitamins and minerals, are dehydrated in large quantities.

Dehydration is regarded as a vital process in the food strategy of the war. As Secretary Wickard has said: "The possibilities are endless. Winning the war is the primary reason for dehydration now. But dehydration can be important in winning the peace, too. It is one of the most effective ways I know for conserving food supplies and moving them cheaply and easily wherever they are needed."

Production of Dehydrated Foods

		1942	1940
Eggs	(in pounds)	235,000,000	7,500,000
Milk	(in pounds)	565,000,000	322,000,000
Vegetables	(in pounds)	7,000,000	1,000,000
Meat	(in pounds)	1,000,000	none
Apples	(in tons)	24,000	12,000
Apricots	(in tons)	20,800	11,000

* * *

PRODUCTION AND RAW MATERIALS

ORGANIZATION FOR WAR PRODUCTION

Before Pearl Harbor, America had a huge industrial plant, but it was turning out pleasure cars instead of warplanes and tanks, metal kitchen gadgets instead of ordnance items—all the goods of peacetime and few of those needed for war.

To transform America into the "arsenal of democracy," this industrial plant had to be converted.

The first organization charged with the responsibility of getting the defense production program under way was set up by President Roosevelt on May 29, 1940. Known as the National Defense Advisory Commission, it consisted of seven members, functioning in an advisory capacity to the Council of National Defense, which had been established by Congress before the U. S. entered the last war.

NDAC had no executive power and could neither issue nor enforce regulations. Its inadequacies became apparent as the military plight of the democracies became more desperate and the scope of the American effort was increased. The total U. S. authorized defense program had grown from 12 billion dollars when NDAC was established to 21 billion dollars by the end of 1940. The United States learned that its defense production program must be directed by a central body with one executive head authorized to enforce regulations it deemed necessary.

Consequently, an executive order of the President, dated January 7, 1941, provided that the activities and agencies of NDAC were to be coordinated within the Office for Emergency Management, an extension of the President's Executive Office. On the same day the President established within OEM the Office of Production Management, designed to be the production arm of government. The NDAC became inoperative as its functions were absorbed by the OPM and other new agencies within OEM.

OPM continued in existence for several weeks after the Japanese attack on Pearl Harbor, but it soon became apparent that lack of central direction internally and lack of authority to coordinate the war production activities of other government agencies made OPM inadequate to harness the full might of America's industrial program, for which 64 billion dollars had been made available at the time of Pearl Harbor and which was bounding toward 238 billion dollars.

To take its place, President Roosevelt established the War Production Board on January 16, 1942, to assure "the most effective prosecution of war procurement and war production." The executive order gave Chairman Donald M. Nelson authority to:

(a) Exercise general direction of war procurement and war production;
(b) Determine the policies, plans, procedures, and methods of other federal agencies with respect to war procurement and war production;
(c) Have full and final authority over the issuance of all priority ratings.

The President has stipulated that other members of the board, who are to serve the chairman in an advisory capacity, consist of:

Secretary of War (Henry L. Stimson)
Secretary of the Navy (Frank Knox)
Secretary of Commerce (Jesse H. Jones)
Secretary of Agriculture (Claude R. Wickard)
Director of Production, War Department (Lieutenant General William S. Knudsen)
Administrator, Office of Price Administration (Chester Bowles)
Foreign Economic Administrator (Leo T. Crowley)
Special Assistant to the President (Harry L. Hopkins)
Chairman, War Manpower Commission (Paul V. McNutt)
Director, Office of Defense Transportation (Joseph B. Eastman)
Petroleum Administrator for War (Harold L. Ickes)
War Food Administrator (Marvin Jones)

THE SCOPE OF WAR PRODUCTION

It is the War Production Board's job to direct the functioning of America's industrial plant so that it can produce to the very limit of America's resources in raw materials, manpower, and facilities.

First and foremost, America's millions of fighting men must be supplied with ships, planes, tanks, guns, and all the other equipment they need to engage in modern intensive warfare.

America must also produce munitions, food, and other supplies for her Allies. Though the materials sent abroad under lend-lease constitute a relatively small part of America's total war costs—an estimated 12 percent—they are of fundamental importance to the successful prosecution of the war by the United Nations. By providing them with weapons which they are not in a position to produce themselves, with food which augments their inadequate supply, and with raw materials and industrial equipment which enable them to expand their output of finished munitions and to meet essential civilian needs, the U. S. is shortening the war for all the Allies.

At the same time, the American home front must be supplied with all the essentials that make for health and efficiency. Farmers must have machinery, tools, and fertilizer, or they cannot meet stepped-up food production goals. War workers must be provided with adequate housing, transportation, and medical facilities if they are to do their jobs efficiently. Only by achieving the utmost in quantity and quality of production can this threefold problem of supply be met, and the three dots and a dash which symbolize victory be translated into reality.

CONVERSION OF INDUSTRY

The first step in production for war was to convert industry from production of peacetime to war goods. In many instances conversion meant only a change from civilian to military customers. In many manufacturing plants the change-over, even where the end product was entirely different, meant little more than working according to new blueprints and specifications.

It was in the highly specialized plants, designed for maximum efficiency in mass production of a single product—such as an automobile, a mechanical refrigerator, or a washing

machine—that real conversion of facilities was carried out. In such plants layout had to be altered, machines had to be adapted wherever possible to the performance of new operations, and new machines had to be installed. These plants had to be pulled apart and completely rearranged.

Americans, long masters of rapid, straight-line production techniques, turned their mass production methods to the manufacture of guns and tanks, ships and planes.

The automobile manufacturers were the largest producers of a highly specialized end product. This industry ceased production for civilian use (except replacement parts) in February 1942. By July of the same year, 68 percent of the automotive workers had produced 540 million dollars' worth of war materials, with less than one-twentieth of the shipments going to civilians.

Having increased war production by more than 80 percent in 12 months, the automotive industry is now turning out goods at an annual rate of $9,300,000,000. Preliminary reports show production of planes, tanks, trucks, and other war items as totaling $775,000,000 for July 1943 compared with $747,670,000 for June 1943.

Though it was the largest specialized industry, the automobile industry was not the first to start conversion. The domestic washing machine industry organized to manufacture gun mounts as early as August 1941.

Production of some civilian goods was curtailed during the latter months of 1941, but conversion of facilities did not begin in earnest until stop orders began to be issued in February 1942. April was the cut-off date for refrigerators, vacuum cleaners, home radios, and for certain kinds of metal office furniture; May for domestic washing machines; June for lawn mowers and residential oil burners; July for pianos and domestic sewing machines.

Orders of this kind stopped production and induced conversion of the principal consumers' durable goods industries, industries which in 1941 had produced goods valued at more than six billion dollars and had given employment to more than 600,000 wage earners.

In addition to these "heavy" consumers' durable goods industries, the production of hundreds of everyday articles was practically stopped by orders which prohibited the use of aluminum, copper, steel, and other scarce metals in their manufacture.

Instances of ingenious adaptation of facilities to the manufacture of war items are innumerable. One new shell loading plant is operated by a famous soft drink organization, drawn into war production to utilize its engineering staff and management ability. The largest producer of mechanical pencils in the United States is now making bomb parts and precision items for aircraft. A lingerie manufacturer is making mosquito netting. A rayon company is using its drying equipment to good advantage in food dehydration.

By the autumn of 1942, conversion had ceased to be an important concern of the War Production Board, for it was either achieved or well on the way to achievement.

EXPANSION OF INDUSTRY

America's industrial facilities, great though they were, had to be increased before war production could reach the necessary goals.

In 1941, construction within the United States totaled more than $11,725,000,000, a figure exceeding by more than a billion dollars the previous peak years of 1925, 1928, and 1929. Of this total, direct military and war factory construction accounted for more than $4,500,000,000.

In 1942, the facilities program—including construction, machinery, and equipment—totaled approximately $18,500,000,000, three times the average yearly volume for the last decade. Of the 1942 total nearly 13 billion dollars was for construction within the United States, $3,500,000,000 for machinery and equipment, and about 2 billion dollars for construction outside the United States.

Nearly three-quarters of the total 1942 outlay for war industrial facilities went for plants to produce combat munitions (including merchant ships) while about one-quarter was used to expand facilities for raw materials and machine tools. Among munitions facilities, those for ordnance bulked largest—about one-half of the total. Aircraft plants accounted for another quarter and shipyards for about one-fifth.

At times the 1942 program took nearly 3 million men. It consumed approximately 13 million tons of cast iron and steel in the form of finished products which means it took a pig and ingot capacity of 18 million tons. It took about 180 million barrels of cement, nearly 160,000 short tons of copper in finished products, nearly 190,000 short tons of lead, nearly 75,000 short tons of zinc, and more than 21 billion board feet of lumber. These figures do not represent maintenance and repair. Lumber consumption for construction, maintenance, and repair, for example, almost certainly exceeded 26 billion board feet in 1942.

A glance at the amount of work done in a number of specific types of construction built in 1942 may give a better understanding of the accomplishments. Military housing for more than 250,000 men was provided in a single month. This included not just housing but streets, utilities, recreational facilities, hospitals, and all facilities necessary to house and train men—equivalent to building a fair-sized city in a month.

Aeronautics construction reached a peak of about 250 million dollars a month. This is the equivalent of building 50 airfields a month—each of about 2¼ square miles, equipped with runways a mile long, wide parking areas, gasoline, oil storage and distribution facilities, hangars, and repair shops.

More than 400 million dollars' worth of war factories were constructed in one month, the equivalent of a factory a mile wide and more than 2 miles long built and equipped each month. An average of about 40,000 residential units were built each month, the equivalent of a city of 200,000.

In 1943, facilities construction is moving along a planned decline, with the result that more and more of the U. S. A.'s resources can be thrown into direct production of munitions. At the year's midpoint, America's gigantic government-financed war facilities program was more than 80 percent completed, compared with 61 percent completion at the beginning of the year.

With the exception of certain special programs, some special machinery, and further expansion of raw materials production, the United States at last has the machine tools and the capital equipment it needs to produce all that is necessary to defeat the enemy.

SMALL BUSINESS

For more than a year after the United States began to expand war production, most of the contracts went to the larger industrial firms.

As early as the autumn of 1940, however, a "Small Business Committee" was set up in the National Defense Advisory Commission. Later this became the Defense Contract

Service in the Office of Production Management, and in September 1941, it became the Contracts Distribution Division, which extended a field organization started by Defense Contract Service. By the end of the year, branch offices had been opened in 113 cities throughout the country.

The Contracts Distribution Division concentrated on an effort to induce prime contractors to do more subcontracting and in this field, from February to June 1942, was instrumental in the placement of 14,948 subcontracts valued at something over 522 million dollars. Pools were formed to combine the common facilities of small companies for mutual improvement of production efficiency. Except in a few cases, these pools proved to be an illusory solution due to the inability of groups to provide for themselves suitable engineering talent and managerial control.

As restrictions on the use of critical materials became tighter and more general, the smaller firms began seriously to feel the pinch and a demand arose for more effective action.

This eventually translated itself into an act of Congress, passed in June 1942, which provided that the chairman of the War Production Board would appoint a deputy whose sole concern would be to secure a greater share of war production for the smaller plants of the country.

The act created the Smaller War Plants Corporation, with a capital of 150 million dollars to aid small firms in financing war contracts and in converting their plants so they could get war work. The corporation was empowered also to act as prime contractor.

The SWPC works closely with the heads of the armed services. The procurement officers submit to SWPC their requirements, so that items suitable for production by smaller plants can be selected for consideration.

SWPC engineers select items that can be produced by smaller plants whose facilities are known to be capable and recommend them to the procurement officers. Field representatives of SWPC check these facilities on the spot where necessary and also assist the smaller plants in working out the best production methods.

During the year following the establishment of SWPC, between June 1942 and June 1943, 4,100 firms received prime contracts totaling 750 million dollars and 4,200 other firms received subcontracts totaling 251 million dollars, all through the direct efforts of SWPC.

The total loans and leases made by the corporation up to June 5, 1943, reached 308, having a total value of $12,533,834.

The aggregate value of new loans approved during the two months preceding that date was 2.5 times as large as that of the previous period, while the dollar volume of the loans made and closed through the field offices alone was 12 times greater.

RAW MATERIALS

This global war is making unprecedented demands on American raw materials. Domestic production of raw materials must be increased, available foreign sources must be developed, and strict economy must be practiced in the use of all raw materials.

The United States is drawing heavily on the vast storehouses of raw materials that lie within its boundaries, and hence require no ocean shipping.

In normal times the United States leads the world in the production of cotton, petroleum, copper, steel, coal and coke, lead, zinc, salt, phosphates, and probably in lumber. It has a monopoly of helium gas, and with Peru it shares the bulk of the world's vanadium. It produces more than nine-tenths of the world's molybdenum and four-fifths of its sulphur. Though figures on current enemy production are lacking, the United States probably is the world's largest producer of magnesium, and of aluminum as well. The American aluminum program is based in part on the import of bauxite from Dutch and British Guiana, but the use of domestic ores, particularly low-grade, has been expanded tremendously.

Moreover, the United States is able to supplement its own resources by drawing on those of its neighbors. Canada produces nine-tenths of the world's nickel and leads the world in asbestos production. It is a large producer of wood pulp, copper, lead, and zinc. Mexico has deposits of antimony, copper, lead, mercury, and zinc. Cuba produces low-grade chromite manganese, and will produce nickel. Bolivia and the Belgian Congo lead the United Nations in the production of tin. Bolivia exports antimony and tungsten as well. Peru, in addition to being an important producer of vanadium, produces copper and tungsten. Brazil has deposits of manganese and reserves of nickel. It is also (though on a modest scale) the largest producer of crude rubber among the United Nations. Chile is the world's second largest producer of copper. Argentina produces tungsten and with Uruguay is a large exporter of wool to the United States.

To meet the demand for more and more raw materials, U. S. geologists have re-explored the South Dakota "bad lands," the Arizona deserts, and other promising areas with magnetic and gravimetric instruments. In the likeliest spots, engineers have followed the geologists with diamond drills, stripping tools, and bulldozers to find out what mining techniques are needed to get at the newly discovered ore deposits —tungsten, chromite, copper, manganese.

A related task has been the utilization of previously known but unworked deposits of low-grade ores. Metallurgical engineers have evolved new methods of smelting (recovering the metal by melting and fusing it out of the ore in furnaces), of flotation (suspension of the finely crushed ore in liquid, the heavier metal separating from the lighter impurities by gravity or other means), and of chemical separation (in which a chemical agent reacts with the metal and draws it out of the ore in recoverable form). The remarkable progress made in this field bespeaks the resourcefulness of the American mining industry.

American industry is now better equipped to meet unprecedented demands for raw materials than it was in the last war.

At one time or another in 1917-18, the United States was critically short of about 200 commodities. It had no fixed-nitrogen industry, no coal-tar and petroleum-derivatives industries. Today it has a powerful and well-balanced chemical industry, a fact which helps to explain why, in spite of the demand, the shortages in this war are few.

No nation can wage modern war without nitric acid. It is the base of practically all high explosives. Nor can agriculture function without a flow of nitrates for fertilizer. In the last war the United States had to depend on Chilean saltpeter for nitric acid; in this war it is producing the greater part of its needs at home, partly from coal-tar ammonia, partly from fixed nitrogen from the air. The U. S. Army and Navy need much more toluene for nitration into TNT than coal-tar can produce; but the petroleum industry, by developing synthetic toluene, has met that need. TNT, safest of military high explosives, is used in bombs, shells, torpedoes, and depth charges. As for glycerin for the nitroglycerin explosives, soap factories can supply some and the oil industry the rest, thanks to synthetic glycerin, newest of petroleum derivatives.

Malayan and Dutch East Indian imports of crude rubber have been cut off, but synthetic rubber production is being rapidly developed.

America's tremendously increased hydroelectric resources also have a direct bearing on the raw-material situation. Electrolytic recovery of metals, which depends on hydroelectric power, has made possible the soaring aluminum production of today. The same is true to a lesser degree of magnesium.

Nevertheless, the supply of raw materials has not always kept pace with ever-increasing demands. While in the early part of 1942 the principal war production problem was that of facilities, since the conversion of industry, the principal limiting factor on production has been shortage of materials and labor.

EXPANSION OF RAW-MATERIAL SUPPLY

Prewar United States considered itself fairly self-sufficient in the minerals and metals needed to feed its industrial plant. After the Japanese had struck, however, the critical raw materials which the U. S. did not itself produce became a matter of grave concern. The supply of many of them was almost at the outset, cut off. And as the war program was intensified, there was a heavy strain even on such raw materials as the U. S. had always considered it had in abundance—steel, copper, aluminum, and magnesium.

Substitutes had to be found for those the U. S. could not get. Production of those in abundance had to be stepped up sharply. Production of *steel*, for example, jumped from almost 53,000,000 tons in 1939 to 86,000,000 in 1942. Production for 1943 is estimated at 90,000,000 tons, or almost two-thirds more ingot tons than were turned out in 1939.

Even greater demands were made on the *copper* industry for more and more of the metal so vital in the making of shells and signal equipment. Production was stepped up from less than a million short tons in 1939 to more than two million tons in 1942. Projected goal for 1943 is better than two and a half million tons.

As the war progressed, *aluminum* became increasingly important in the aircraft program. In peacetime 1939, total production was only a little more than 400 million pounds. This figure jumped to 1,400,000,000 pounds in 1942, and the goal for 1943 is nearly double that—almost 2,500,000,000 pounds.

Magic metal of the war has been *magnesium*, used on a very limited scale in peacetime. Production in 1939 was only 6,700,000 pounds. New uses that developed for it in the war effort caused production in 1942 to jump to 105 million pounds. The projected goal for production of this extremely light, tough metal in 1943 is almost 440 million pounds.

These steep increases in production of metals were necessary to meet mounting military demands for direct consumption and for export. For example, at the end of 1941, about one-quarter of total *steel* production went into direct military use. A year later that percentage, including exports to Allies, had climbed to two-thirds.

Military consumption of *aluminum* shot up to 168 percent between 1941 and 1942, and in 1942, 80 percent of production went into aircraft. Exports rose 330 percent.

In normal times, some 5,000 important raw materials are necessary to keep American industry operating. The following pages describe the present position of the United States with regard to the most vital war materials.

STEEL

Nine months after Pearl Harbor three of every four tons of the more than 5 million tons of finished steel products produced each month were going into direct war use, and the remainder was going into such essential purposes as railroads, machinery manufacture, and construction.

In terms of plates and shapes, sheets, bars, pipe, wire, rails, and the like, the United States in 1942 turned out about 62 million tons, or slightly more than 70 percent of the 86 million ingot tons the nation produced. The remaining 30 percent went back into the furnaces in the form of scrap.

This is the way U. S. ingot production has grown since 1939:

	Net tons
1939	52,798,714
1940	66,982,686
1941	82,927,557
1942	86,000,000
1943	[1]90,000,000

[1] Estimated

Steel is the backbone of the entire armament program. It is needed not only for tanks, ships, guns, and planes, but for barracks, factories, machine tools, and mining machinery. The oil industry, the railroads, the utilities, and the farm machinery manufacturers must have steel for maintenance and other essential purposes, steel is needed for hangars for airplanes, submarine nets for harbors—steel for Dutch Harbor, steel for Eritrea, steel for the British, steel for the Russians, steel around the world.

America's gigantic industry in 1943 produces 1½ times as much steel as Germany and all its conquered countries put together. It produces more in a month than Japan produces in a year. It has increased its production 70 percent since 1939, and will increase it still more in 1944. Over 75 percent of its output is going into direct war production and exports to Allies, the rest almost entirely into railroads and essential industrial equipment and maintenance. Use of steel in civilian non-essentials has been eliminated.

Yet the call is for still more production; old and new facilities must be pushed to the utmost.

STEEL ALLOYING METALS

Since essential requirements for alloy steels during 1942 were more than double the 1940 consumption, the War Production Board actively pushed a broad-scale program to assure an adequate supply of these metals, essential in every phase of the military program.

Among the major steps undertaken by WPB to fit the essential requirements to the supply has been the development of National Emergency alloy steels. These NE steels use manganese and silicon to produce steels with qualities comparable to more highly alloyed types.

The substitution of the more plentiful alloying elements for the scarcer ones has been intensified. Progress also has been made in expansion of production and imports.

The problem of alloy steel supply is complicated by the fact that of the six alloying metals—nickel, chromium, manganese, tungsten, vanadium, and molybdenum—all but molybdenum come principally from outside the United States.

In 1936, when the U. S. used 324,258 tons of chromite ore, all but 269 tons were imported from Africa, Cuba, the Philippines, and Turkey. By 1940, when war had spread widely, consumption doubled over 1936, and production increased ten times. But domestic production was still only 2,666 tons out of 657,689 tons total supply. To meet military and essential civilian requirements in 1943, about three times the tonnage used in 1939 will be needed. This includes cutting civilian needs to something like three percent of the former total.

Large low-grade deposits of chromite ore have been developed in Montana, California, and Oregon. These ores are not of high quality, but are adequate in an emergency. The Reconstruction Finance Corporation is providing over ten million dollars for chromium projects, and private industry is adding several million more.

The United States produces well over 85 percent of the world's supply of molybdenum. In the early stages of war production, this alloying metal was widely substituted for tungsten, chromium, nickel, and other more scarce alloys, but the formerly plentiful metal today is tightest of all steel-alloying metals. As a result of steps taken in 1942 to increase the domestic supply, some 15 percent more molybdenum will be produced in 1943. If tests with new and low-grade mines are favorable, some several million additional pounds will become available.

In 1939, production of tungsten, needed for cemented carbides as well as tool steel, was just over 3,600 tons of concentrates. By 1941 it had doubled, and in 1942 it was doubled again.

Large imports in 1940 and 1941 helped to build a substantial stockpile, but when the war spread to the Far East, oriental sources were cut off. Imports from this source for 1942 were less than in 1941. Production in Latin American countries is being stimulated, and for the duration of the war at least, Argentina, Bolivia, Chile, Peru, and Mexico will be the U. S. principal foreign sources of supply.

Strenuous efforts have been made to locate and develop United States tungsten properties. A California deposit has been developed which yielded 17 percent of the new tungsten in 1942. Another plant in Nevada is producing almost as much. Although domestic production has more than doubled since 1939, the United States is still dependent on imports for about 50 percent of its requirements.

Vanadium is produced in these countries, in this order of importance: Peru, United States, Southwest Africa, Northern Rhodesia, Mexico. United States production has doubled since 1937, will be the highest in history in 1943. Imports into the United States in 1942 were down somewhat from 1940.

One large domestic producer is making arrangements for the mining of very low-grade ore which will yield an additional 2,200,000 pounds of vanadium. Government financial aid is being given mines whose ore is so low-grade that it cannot be extracted at present prices. In 1943, further increased production, recovery of metal from flue ash, and miscellaneous small sources are expected to double 1942 available supply.

Nickel, one of the oldest steel alloys, has been found in the sword blades of ancient warriors. Some of this hard, tough, corrosion-resisting metal is produced in the U. S., but only negligible amounts—2,000 to 3,000 tons of secondary metal recovered from scrap, and 500 tons or so of primary metal as a by-product of electrolytic refining of copper. Canadian production in 1939 was 102,000 tons.

Curtailment of non-essential uses, maximum recovery of scrap, highest possible production, and careful allocation among countries are warding off the shortage which in 1941 threatened to be crippling.

The most significant possibility of expanding U. S. supply is increasing nickel imports from Cuba. A subsidiary of a United States corporation has secured 20 million dollars from the Reconstruction Finance Corporation to treat low-grade Cuban ores by a special process. The concentration of nickel in Cuban ore is low; it is expensive and difficult to extract; but need for nickel is so great that even comparatively sparse sources are being called upon.

In prewar years manganese imports more than matched normal requirements; the U. S. now counts on domestic production, largely from low-grade ore, to meet about 17 percent of essential needs.

Manganese is an absolute requirement in every pound of steel produced, non-alloy as well as alloy types. Normally, for every ton of steel produced, about 13 pounds of manganese are required. Manganese, acting as a purifying agent, makes steel sound and clean.

In 1940, imports totaled 1,294,000 tons of the metal—more than enough to meet requirements. In that year U. S. production was only 40,000 tons. The main sources of foreign supply, in order of importance, were the Gold Coast, the Union of South Africa, Brazil, India, Russia, Cuba, and the Philippines.

Every effort is being made to increase imports from sources still open to the U. S. A. and to step up domestic production to the maximum. Remarkable success was achieved in 1942 in the expansion of domestic output; even more encouraging results are becoming apparent during 1943.

COPPER

The United States copper supply, which reached an all-time high of about 2,460,000 tons in 1941, was increased to more than 2,800,000 tons in 1942.

To encourage production of marginal ores, WPB, OPA, and Metals Reserve Company developed a premium payment plan to pay 5 cents a pound above the regular 12 cents for all production over certain quotas. Many mines were worked 168 hours a week. Scrap collection was a most important source of metal, resulting in more than 600,000 tons of refined copper during 1942.

Large amounts of copper have been saved by substituting other materials in many military items. Important savings have been made through the use of steel cartridge cases and clad steel bullet jackets, but unavoidable delays have been encountered in some sizes. Specifications by the Army and Navy have been set up so as to curtail or eliminate the use of copper and brass where possible. Silver has been substituted to some extent in electrical conductors.

Chile is America's principal source of imported copper. Other foreign sources include Canada, Mexico, and Peru, but the amounts obtainable from them are relatively small. Total imports in 1942 were more than 600,000 tons, copper content, almost double the amount imported in 1939.

The most important continuing problem in copper production is the shortage of labor.

ZINC

There is at present no serious shortage of zinc in the United States. Because shortages, particularly in the high grades, were anticipated two years ago, conservation measures were joined with increased production early in the war program. These have been successful in effecting a balance between supply and demand.

After trimming non-essential use to a minimum, two problems—developing new sources of ore and expanding milling, smelting, and refining capacity—had to be solved.

New projects include development and exploitation of new ore deposits, opening of new mines, mills, smelters, and refineries. One new smelter was completed in 1942, and four electrolytic refineries with an annual capacity of 216,000 tons were put into operation.

To encourage production of marginal ores, premium prices over regular prices are paid for all production over quota. Government aid in the form of technical and engineering assistance, loans, help in building access roads, and attempts to correct the labor shortage was made available to zinc producers.

Through an arrangement between WPB and the Foreign

Economic Administration, imports of South American and Canadian ores and concentrates have been increased. Progress has been made in increasing the amounts of recoverable metal in Canadian concentrates.

TIN

In 1941 the United States imported the bulk of the world's tin supply, which comes almost entirely from the Far East.

Production of tin in other countries is being shared among the United Nations through the efforts of the Combined Raw Materials Board. A major part of the ores of Bolivia, now the principal United Nations producer, have been allocated to the United States, and are being treated at a smelter built in Texas.

The output of the Belgian Congo has also been allocated to America, and U. S. equipment is being shipped there to increase the output. The United States will obtain small amounts of additional ore from other sources. The rest of America's supply is coming from salvage operations and rigorous conservation measures.

Efforts to recover tin from cans, which normally took half the supply, are expected to provide more than 5,000 tons of tin a year.

A project of great importance has been the expansion of electrolytic tin plate manufacturing facilities. Prewar tin plate was made by the hot-dipping process, using about 1.5 percent tin and 98.5 percent steel in tin plate. The electrolytic process makes tin plate with only .5 percent tin. These new plants are now in operation and are helping to take care of the 1943 food crop.

As a conservation measure, silver is being used instead of tin in bearings and solder. Glass, paper, and fiber containers are being used instead of tin cans, and dehydration of food is releasing quantities of tin formerly used to hold canned food.

ALUMINUM

Because of its lightness and strength, aluminum is extremely useful in airplanes, ship construction, ordnance, and other military equipment. It is preeminently the metal of air power and comprises approximately 60 percent of the total flyaway weight of a typical military airplane.

Domestic primary production of aluminum was 163,000 short tons in 1939; 209,000 short tons in 1940; and 309,000 short tons in 1941. Output in 1942 was more than 521,000 tons, and the estimate for 1943 is 920,300 short tons. Net imports from Canada in 1942 were 126,600 short tons, while the estimate for 1943 is 228,000 short tons. The production problem in aluminum has now been overcome.

It takes 24,000 kilowatt-hours of electricity to produce one ton of aluminum. The aluminum industry is thus dependent upon the big power dams of the United States, such as those of the Tennessee Valley Authority, all of which are working at peak production.

To import bauxite, to date the only commercial source of aluminum in this country, puts a strain on U. S. shipping. Dutch and British Guiana provided 60 percent of the U. S. ore supply in 1940, 55 percent in 1941, and only 25 percent in 1942.

Domestic production of ore in 1942 was more than 2,600,000 long tons, imports 848,600 long tons. Production for 1943 is estimated at more than 6,400,000 long tons and imports at about 800,000 long tons (all figures on dried ore basis).

MAGNESIUM

Large-scale production of magnesium was carried on in the United States for the first time in 1942. Magnesium, little known and produced since its discovery some 25 years ago, became an important partner of aluminum in aircraft manufacture.

The month before Pearl Harbor, U. S. magnesium production was at the rate of 42 million pounds per year—not large by today's standards, but tremendous by 1939 standards (6,700,000 pounds).

In 1942 the outstanding technological development in magnesium was the ferro-silicon process for extracting magnesium in commercial volume. Dolomite, a plentiful raw material, is reduced in a gas or electric furnace, the magnesium condensing in the form of pure metal. Less electric power is required and construction of the plants takes less critical material than other types. Enough magnesium is now in sight to meet military needs for the duration.

The production problem has been solved so successfully that efforts are being made to find further uses for magnesium.

LEAD

Lead, used in bullets, tetra-ethyl lead for aviation gasoline, storage batteries for submarines, bearing metals for motorized equipment, lead paints, and cable sheathing, also helps relieve shortages in copper, zinc, and tin.

The United States is the largest producer of lead in the world. By 1867 shallow mining was pretty well exhausted, and the St. Joseph Lead Company, now the world's greatest lead producer, was formed to work deep mines in the Ozark Mountains of Missouri, at first using four- or six-mule teams to haul loads of 20 or 30 pigs of lead through Ozark mud to the railroad 14 miles away. Since then Americans have learned to process the complex lead-zinc-silver ores of the Rocky Mountains, and Idaho, Utah, and Montana are now large producers of this type of ore. However, the Missouri area still leads in over-all production of lead, accounting for about 60 percent of U. S. output.

Lead is the one important metal in which a critical shortage did not exist at the close of 1942. When concern was first felt for lead supply, back in October 1941, control over distribution was established and an emergency lead pool was set up. Immediately after Pearl Harbor, restrictions on certain end uses of lead were established.

U. S. production of lead at the end of 1942 was at the rate of 1,308,000 tons per year, contrasted with a rate of 1,339,000 late in 1941. This represents a decline of about 10 percent from 1941 which is more than offset by increased imports. The net gain in available lead supply grew out of decrease in civilian uses.

The favorable lead outlook brought a slight easing of restrictions on use of lead in building and in manufacturing in November 1942.

Principal concern for lead during 1942 was to build a stockpile to take care of all contingencies. To this end all possible production was encouraged, including premium payments of 2¾ cents per pound above regular price for all production over quota, and the same efforts to correct labor shortages as in the cases of copper and zinc.

With the help of other large producers in Mexico and Canada, American war needs are now being covered. In 1943 lead supplies are expected to average 185,000 tons a month against monthly requirements of about the same amount.

MISCELLANEOUS MINERALS

Not one mineral has escaped the pressures of war since the U. S. entered the conflict.

The year 1942 saw silver changed from a monetary and luxury metal to an industrial metal of first importance.

Gold mines in the U. S. have been slowed down or closed, to save critical materials and manpower.

Throughout the minerals industry pressure for production has been applied on all fronts. Mercury, the nonmetallics, mica, clays, quartz crystals, the rare metals—all have important war uses and have been increased tremendously in production. For instance, quartz crystal output, important in communication, has been increased markedly, with the notable assistance of conservation and substitution programs. A new important domestic industry, small diamond dies, has been erected almost overnight, freeing the U. S. from previous dependency on precarious overseas sources. And substitution programs have been of considerable assistance in remedying the tight situation in jewel bearings, important in various types of precision instruments.

RUBBER

The capture of 90 percent of the world's rubber supply by the Japanese in the first three months of the war put rubber high on the list of America's critical materials.

Malaya and the Netherlands Indies were the only sources of natural rubber in the world which had been successfully exploited to an important extent prior to the present war. When the Japanese armies overran this area in early 1942, the United States had no place to turn for the 600,000 tons it consumed annually in normal times, or for the several hundred thousand additional tons needed for modern, mechanized warfare.

The rubber stockpile that had been built up in 1941 totaled less than a year's supply, and synthetic production was infinitesimal; a modest plant expansion program was getting under way. Sources of crude rubber still open to the United States, in Africa and South America, offered no prospects of large supplies for a long time. The same thing was true of guayule and the other rubber-bearing shrubs.

There was no delay in realizing the magnitude and seriousness of the problem once the normal supply was lost. The synthetic rubber program was expanded immediately, with the goal set for more than 400,000 tons in 1943 and still greater capacity later. The sale of new tires, except on strict rationing basis, was stopped January 5; recapping was restricted February 19. On May 2, the Office of Defense Transportation was given authority over all rubber-borne transportation, and ten days later gasoline rationing began on the Eastern seaboard—both as a gasoline- and rubber-saving measure.

There followed a period of public confusion on the subject of rubber, fed by a multitude of pseudo-experts and conflicting opinions of those in possession of facts. Faced with both problem and confusion, the President appointed a rubber survey committee, composed of Chairman Bernard M. Baruch, Dr. James B. Conant, and Dr. Karl T. Compton, to investigate the situation.

The Baruch Committee assembled the facts about rubber, studied them, and, on September 10, 1942, laid down a comprehensive program designed to carry the nation through the rubber shortage. The report stressed both rubber conservation and increased synthetic production. To bring about the former, the committee called for nation-wide gasoline rationing, 35-miles per hour speed limit, periodic tire inspections, and a program to maintain essential civilian driving for the duration. The committee further recommended the expansion of the projected synthetic program of 1,100,000 tons annually, as well as of reclaiming facilities and scrap collection, and urged the appointment by the chairman of the War Production Board of a Rubber Administrator with full authority to carry out the recommended program. A week later, the President created the Office of Rubber Director in WPB, and Donald M. Nelson appointed William M. Jeffers director. Jeffers resigned on September 4, 1943; Bradley Dewey is now director.

The conservation measures recommended by the Baruch Report, to make the one million tons of rubber then on automobile tires last as long as possible, have been put into effect. A nation-wide 35-miles per hour speed limit, a system of periodic tire inspection, and a tire replacement and recapping program all began within two months of the submission of the report, and on December 1, 1942, nation-wide mileage rationing was instituted to limit the use of rubber to essential driving.

The United States is now engaged in building a tremendous new synthetic rubber industry, compressing into a couple of years a task that ordinarily would take a dozen. Only 3 percent finished a year ago, the synthetic rubber facilities program was 15 percent in place at the beginning of 1943; had risen to 61 percent at the end of June. These plants will all be in operation by January 1, 1944, and will be producing 850,000 tons annually.

Speed is vital not only to the nation's war program, but also to its civilian economy, which consumed 775,000 tons of crude rubber in 1941. With Malaya and the Dutch East Indies, source of 90 percent of the world's crude rubber supply, in the hands of the Japanese, American chemists and engineers are working fast to supply the rubber which the United States and its Allies must have to fight this mechanized war, for the national stockpile of crude rubber at the start of 1943 was only 440,000 tons, with some 57,000 tons of imports estimated for the year.

Against this, William M. Jeffers estimated in a recent report that the total rubber requirements would be 577,000 long tons in 1943, and 672,000 in 1944. Neither estimate includes any near-normal quantity for civilian consumption.

Deficits in the crude-rubber supply must be filled by synthetic rubber. Backbone of this program is *Buna-S*, best-known and most-tested of the synthetic rubbers. It is made from butadiene, which has two sources (petroleum and grain alcohol). Buna-S is more than 90 percent as good as natural rubber in tires, and is also useful for insulation and waterproofing. Present indications are that 275,000 long tons of it will be produced in 1943. The goal for 1944 production is more than 700,000 tons.

Neoprene, thiokol, and butyl also figure in the synthetic rubber program, though on a smaller scale. *Neoprene* is an American invention, having been discovered in 1925 by DuPont chemists. Its basic raw materials are coal, limestone, and salt. It is made by combining acetylene gas, from coke ovens, with hydrogen chloride. It is costly to make and requires special care and skill. Its quality of resistance to the deteriorating action of fractional petroleums makes it a good specialty rubber for purposes for which natural rubber is not nearly so suitable—such as gasoline hoses. It is also resistant to heat, sunlight, and chemicals.

Thiokol, another American invention, was discovered by a Kansas chemist in 1929. It is made from caustic soda, sulphur, chlorine, and ethylene gas, and has an overpowering odor which induces coughing and sneezing. Thiokol is not so strong nor so wear-resistant as natural rubber, but it does not deteriorate on exposure to air, sunlight, or oil. It can be used for gasoline hoses, washers, cable sheathing, and barrage-balloon coatings, but production of it is comparatively low.

Butyl is the infant of the synthetic rubber family, having been discovered only three years ago. It is made of the same butadiene as is used in Buna S, plus butylene, an oil-refinery product obtained from a natural gas (butane) produced by skimming refinery gas. The process of making it is simpler and quicker than the "batch process" needed for Buna S and neoprene, and the raw materials are cheaper. Butyl, because of its flexibility, is now used to a consider-

able extent in the manufacture of inner tubes, where it has proved most satisfactory.

Part of the rubber slack is being taken up by reclaimed rubber, for which the United States now has a productive capacity of 28,000 tons a month, expanded from 18,000. It is being used for both civilian and military requirements.

Extensive operations are being conducted in the Amazon basin by the United States and Brazilian governments to stimulate the gathering of wild rubber. It is estimated that the United States will receive approximately 35,000 tons from this source in 1943.

Some plants contain rubber, and one that has been tested for commercial possibilities is the Mexican shrub guayule. It is estimated that California plantings of guayule will produce 600 tons in 1943.

PETROLEUM

Petroleum is used as the source of gasoline, lubricants, fuel oil, diesel oil, and asphalt. The expanding by-products industry produces, among other things, butadiene for synthetic rubber, and toluene for nitration into TNT.

The first oil well in the United States was sunk by Colonel E. L. Drake, at a point on Oil Creek, near what is now Titusville, in western Pennsylvania. Colonel Drake began drilling in 1858 and, after 19 months' work, finally struck oil at a depth of 69 feet on August 27, 1859. "Rock oil" enabled Americans to trade their candles for kerosene lamps, but it remained little more than an interesting freak of nature until about 1900. Since then the development of the internal-combustion engine has made gasoline the driving power of a civilization whose externals have changed almost beyond recognition. In all its forms, from the heavy oil used in ships to the high-octane gasoline which gives an airplane extra speed, petroleum is one of the indispensables of modern warfare.

In this war it supplies the outstanding raw-material advantage of the United Nations. The production ratio in petroleum between the United Nations and the enemy is better than 10 to 1. The United States alone produces two-thirds of the world's petroleum. In 1941 it broke all records with a total of about 1,400,000,000 barrels of crude oil. The domestic shortage on the East coast of the United States is due primarily to military demands and civilian overconsumption, as transport difficulties have now been checked.

American 100-octane gas is one of the United Nations' most powerful war weapons, giving planes more power, greater speed of take-off and climb, greater range and bomb load, and higher ceiling. The United States was producing 100-octane gas at the rate of about 40,000 barrels a day at the beginning of 1942. This output has been and is being vastly increased. High-octane gasoline plants have been granted high preference ratings, and steady increases in the program were expected in the remaining months of 1943. Even greater progress has been made in the privately financed high-octane program where, by July 1, 1943, around 63 percent of the expansion had been completed.

Butadiene, from which the Buna types of synthetic rubber are made, can be produced from alcohol or separated from petroleum. The present synthetic rubber program relies on petroleum for the larger part of its butadiene.

CONSERVATION, SUBSTITUTION, SIMPLIFICATION

An all-out conservation program has helped to enlarge and replenish the country's stockpiles of scarce raw materials. Thousands of tons of critical material have been made available for war purposes by simplifying the designs, models, and sizes of industrial products, by revising architectural and engineering specifications, by substituting more plentiful materials for the scarce, and by salvaging the accumulation of years of waste from the homes, factories, and junk yards of America.

To the stockpiles created by salvage have been added even greater quantities of raw materials, produced by simplification, substitution, and specification revision. For instance, 75 million pounds of primary aluminum were saved by segregating scrap aluminum at the toolheads, and 156 million pounds of copper were conserved by freezing inventories of fabricated and semi-fabricated parts in factories and warehouses in 1942. Eliminating its use in mop-wringers saved 35,000 pounds of bar and strip steel; 12,000 pounds of black sheet steel were conserved by diverting this metal from calendar edgings. Reducing the types of bicycles from 20 models to 2 simplified models per manufacturer is saving hundreds of thousands of pounds of steel, copper, and rubber, not to mention thousands of pounds of nickel, chromium, tin, and cadmium that went into bicycle gingerbread —bells, stands, baskets, and toolboxes. Substituting glass for steel in icebox drain pans saved 65,000 pounds of steel in defense housing projects alone in 1942. Revising specifications for a "Victory Model" stove in 240,000 defense houses saved 19,200,000 pounds of steel.

Down-grading of materials is constantly in progress; 6,000 tons of primary copper, for example, have been saved by specifying secondary and scrap metals of less than accustomed purity in the manufacture of certain types of bronze and brass castings.

The armed services have accepted substitutes wherever such materials would not interfere with combat efficiency. A saving of 3 million pounds of rubber for use in bomber tires was effected by substituting cattle-tail hair for rubber in tank and jeep linings. By substituting steel for brass in certain types of ammunition and cartridge cases, the Army saved over 77 million pounds of copper for other uses where nothing but copper would suffice. It conserved 900 million pounds of steel by substituting wood for steel in truck bodies.

Trifles make a tremendous difference. Great quantities of copper were saved simply by reducing the copper content of cartridge brass from 70 percent to 68½ percent. Lead has now replaced scarcer zinc as a protective coating on sheet iron used to make non-critical domestic items.

By reviewing architectural and engineering specifications for U. S. construction projects down to the last detail and revising them to knock out excess quantities or non-essential uses of critical materials, it was possible in 1942 to save 800 million pounds of steel, 60 million pounds of copper, and 6 million pounds of rubber.

By changing specifications for new buildings, it was possible to save 10 percent of the structural steel needed for each building. The steel requirements for each new mill built in 1942 were reduced by 20 percent, and the steel needed for reinforcing bars in concrete was cut down by 25 percent through engineering design study and revision of specifications.

Most changes in specifications, all simplifications, and many substitution measures which were designed principally to save materials, achieve additional savings in manpower, transportation, and productive capacity. For instance, the elimination of 349 out of 710 types of radio tubes, in addition to conserving critical supplies of mica, molybdenum, nickel, and tungsten, also released 158,000 man-hours and 80,000 machine-hours for extra war production in 1942. More than 75 limitation orders involving simplification were issued in 1942.

NATIONAL CONTROL OF RAW MATERIALS

Methods of controlling the flow of materials to industry were revised during 1942 as supply dwindled in relation to demand. Both the early priorities system and the Production Requirements Plan, designed to see that first things came first in material allocations, broke down under the burden of a war production volume that grew from 2 to more than 6 billion dollars a month during the first year of the war.

These early systems were replaced in November 1942 by the Controlled Materials Plan, which assumed a stricter and more comprehensive control of America's most critical raw materials. Materials not covered by CMP are distributed through a system of priorities.

The main purpose of the plan is to make certain that production schedules are adjusted within material supply so that production requirements are met. Under CMP, allotment of materials is vertical in nature. That is, the materials to fill any Army contract for tanks flow from the Army to the prime contractor and, through him, on down to every subcontractor making parts for those tanks. Enough materials to make the tanks, and just enough, are allotted. And no tanks are scheduled unless materials have been allotted for them.

Carbon and alloy steel, copper, and aluminum—the three basic critical materials—are the first "Controlled Materials" to be directly allotted under the plan.

Under CMP, the Requirements Committee of WPB, which makes the broad, final allotments, doesn't dole out so much steel, copper, and aluminum directly to the manufacturers. Rather, it deals directly with the Army, Navy, Maritime Commission, and the other government agencies which actually apportion the materials. These agencies are known in CMP as the "Claimant Agencies."

The Requirements Committee knows how much steel, copper, and aluminum are available for a given calendar quarter. Before it can apportion the available supplies among the various Claimant Agencies, it must know how much is required by each one.

To supply this information, prime contractors prepare and submit a breakdown of all materials required for the approved end-products on which they are working. The breakdown comprises a "Bill of Materials" specifying not only what materials are required but when they must be received to meet authorized schedules.

In making up his Bill of Materials, each prime contractor includes both the materials he puts into production himself, and those needed by his subcontractors and their suppliers. The Bill of Materials covers requirements not only for Controlled Materials but also for other scarce materials.

The Bills of Materials obtained from prime contractors are assembled by each Claimant Agency and total requirements are then submitted to the WPB Requirements Committee, and to the respective Controlled Materials Divisions, which make the necessary adjustments to bring the whole program into balance with available supplies.

When requirements have been brought into balance with supply and the programs of the various Claimant Agencies are approved, WPB allocates authorized quantities of the three Controlled Materials to each.

The Claimant Agencies, in turn, distribute these broad allotments of materials among prime contractors. The prime contractors pass on materials to their subcontractors and suppliers.

Custom-built products for the armed forces or other Claimant Agencies, such as guns, tanks, ships, and planes, are known as Class A products, and receive their materials allotments directly from the Claimant Agencies. Other products, including standard parts of Class A products—such as nuts, bolts, small motors, and the like—as well as maintenance and repair products for both industrial and civilian use, are on the Class B list. They receive their materials allotments directly from WPB.

CMP shortens substantially the production cycle from raw material to finished product. And while time is of the first importance, it shares this position with another vital element. This is flexibility. When the shifting tactics of modern war alter strategic requirements, immediate adjustments must be possible, and the method of vertical distribution under CMP provides the mechanism for rapid shifts in the flow of materials to those production schedules most urgently needed in any given set of circumstances.

CMP forces balancing of the over-all program so that the right number of tanks are made in relation to ships, for example, and it also forces scheduling of each end-product so that exactly the right number of propellers for a certain type of plane are made in relation to number of engines made for that plane. The goal of CMP is to put the whole program in balance, and each plant on schedule.

INTERNATIONAL CONTROL OF RAW MATERIALS

The responsibility of international materials control is vested in the Combined Raw Materials Board, composed of representatives from the United States, the United Kingdom, and Canada. Others of the United Nations are brought in for consultation as need requires.

As the agency exercising general direction of war procurement and war production, the War Production Board has been actively represented on the Combined Raw Materials Board. The functions of almost every division and bureau in the War Production Board are to some degree related to international supply. Those dealing most closely with international supply problems are the Foreign Division, the Stockpiling and Shipping Division, and the Canadian Division.

The Foreign Division conducts the liaison for the War Production Board with the Foreign Economic Administration, the Department of State, and other agencies concerned with foreign requirements, and provides a central point in the War Production Board for the consideration and clearance of any policy decisions related to the foreign requirements of those agencies.

Requests for the export of materials and commodities are submitted by FEA to the Foreign Division. Requirements are reviewed, analyzed, and programmed by the Foreign Division and referred with recommendations to the Requirements Committee of WPB. The Requirements Committee, balancing these primary needs against available supplies, allocates a specific quantity of each material to the claimant agency. Thus the picture of military, non-military, and foreign demands on the U. S. stockpile of materials is completed.

The Division of Stockpiling and Transportation, advised by an inter-agency imports priorities committee, correlates the efforts of the many government agencies charged with the planning and execution of the war import program. This division determines priorities for the order of shipment of materials, and quotas for the amounts which may be obtained from individual countries.

Permits for non-essential commodities are refused when

they compete for shipping space badly needed for critical materials. Permits for import of essential items are issued only after it is assured that these will be allocated for war production after entering the country.

The Division of Stockpiling and Transportation is also the center for day-to-day reporting on the content of U. S. stockpiles. These reports indicate the course of future U. S. trading.

The Canadian Division was established within the War Production Board on August 31, 1942. Its creation was a further step toward coordination of munitions production, materials distribution, and priorities controls in the United States and Canada. This division effectuates the policy of placing firms engaged in war production on both sides of the border on an equal footing with respect to distribution of materials.

Canadian companies engaged in war production are eligible to receive priorities assistance in obtaining materials from the United States under a modified Controlled Materials Plan, or upon special authorization, under the various preference rating orders applicable to similar American companies. The Canadian Division claims for Canada under the Controlled Materials Plan, and, generally speaking, it has the responsibility for all U. S. material required by the Canadian war economy.

PRESENT STATUS OF WAR PRODUCTION

In a speech at Toronto, Canada, July 8, 1943, the chairman of the U. S. War Production Board summed up the success of the war production program in these words:

"In 1939, after many years of intensive preparations for war, the Axis nations were producing about 12 billion dollars' worth of combat munitions. At that time, Russia was producing somewhere around 9 billion dollars' worth. The United Kingdom, Canada, and the United States combined were producing only about two billion dollars' worth.

"But in 1942, the United Nations outproduced the Axis almost two to one. In 1943, the Allied output may reliably be expected to be nearly three times Axis production. In 1944, it may well be nearly four times as great. That is the trend; let the enemy take note of it.

"All the major belligerents have either reached or are approaching a peak level in war productive effort. But while on this continent it might be possible to achieve some further intensification of that effort, we have every reason to believe that in Italy and Germany the wholesale destruction of plants from the air is reducing munitions output well below their recent peak levels.

"Bear in mind, too, that only a relatively small proportion of our output has as yet been brought to bear directly upon the enemy. What we have achieved so far has been achieved with a fraction of our potential fighting strength. The next step is to make the enemy feel the tremendous weight of the total output of our war production machine."

Appropriations, actual war expenditures, and index numbers of war production all indicate the same rapid growth.

The total U. S. authorized defense program grew from 12 billion dollars when the National Defense Advisory Commission was established in May 1940, to 21 billions by the end of the same year. Through December 1941, the Congress of the United States had appropriated a total of a little more than 77 billion dollars for defense. By December of 1942, appropriations had risen to 238 billion dollars, and the current total hovers around 334 billion dollars.

A glance at actual expenditures tells the same kind of story. Adding actual payments from the Treasury for war purposes to the war expenditures of the RFC and its subsidiaries, we find that the slightly less than 2 billion dollars spent in the last six months of 1940 climbed to almost 14 billion dollars in 1941, and to more than 52 billion dollars in 1942. In the first half of 1943 alone, almost 42 billion dollars were spent for war, making a grand total, so far, of 110 billion dollars. The daily rate of expenditure has climbed from $12,500,000 in the second half of 1940 to more than 269 million dollars in the first half of 1943. The curve is still climbing upward, the daily rate for June 1943 being over 295 million dollars.

The index of over-all production of all munitions—the output of the "Arsenal of Democracy"—has climbed accordingly. The U. S. is currently producing the weapons of war at a rate more than five and one-half times greater than in the month before Pearl Harbor.

AIRCRAFT

The biggest business in America today is building airplanes. When war broke out in Europe in 1939, aircraft production was rated 75th in the list of American industries. In 1942, it ranked second, exceeded only by steel. In the middle of 1943, it was indisputably in first place.

Total delivery of planes increased from 6,000 in 1940 to almost 20,000 in 1941, and to 48,000 in 1942. From less than 600 military planes built in June 1940, production jumped to 5,500 in December of 1942—an 800 percent increase in 30 months. In July 1943 the total reached 7,373 planes.

Even this increase in the number of units, however, is not an accurate measure of the real progress in this field. While America produced almost twice as many planes in April 1943 as in April 1942, their total weight was almost three times greater. By the same month next year, schedules call for the production of more than three times as many aircraft as in April 1942, weighing six times as much. The average weight per plane this year is 30 percent greater than last year. In 1944, this figure will rise to 60 percent.

The constant trend, dictated by actual battle experience, has been toward more and heavier bombers for offensive warfare. American factories turned out almost four times as many heavy bombers last April as were produced in April a year ago. Ten percent of all the planes that rolled from the assembly lines in that month were four-engined bombers, as compared with less than five percent a year ago. Considered in terms of weight, this percentage was, of course, very much higher.

MERCHANT SHIPPING

When the U. S. Maritime Commission began work on September 26, 1936, the American merchant marine numbered about 1,450 ocean-going ships of 2,000 gross tons and over, totaling some 8½ million deadweight tons.*

* Ton can mean weight or cubic space. There are four kinds of tonnage commonly used: *Displacement tonnage* is the actual physical weight of a ship as measured in terms of the water it displaces. Warships are always measured in displacement tonnage and merchant ships almost never. *Gross* tonnage is the internal capacity of a ship measured in terms of enclosed space (that is, permanently enclosed space). A gross ton is 100 cubic feet of enclosed space. (Roughly, if you take the length of a ship, multiply it by the breadth—the beam—and multiply that by half the beam, then divide by 94 you get the gross tonnage.) *Net tonnage* is gross minus whatever space in the ship is not used for revenue—the working quarters of the ship, captain's quarters, etc. Net ton is also 100 cubic feet of enclosed space. Net tonnage is usually the tonnage on which harbor charges, anchoring fees, etc., are based. *Deadweight tonnage* is the difference in weight of a ship when it is floating on water (no freight) and when the ship is fully loaded. In short, what the ship can actually carry in weight tons (2,000 lbs.). *Freight tonnage* is used only in the wine trade, and it is about 42 cubic feet of space. *Panama Canal and Suez* tonnage are arbitrary figures on which a ship's toll is figured (net multiplied by about 1½).

In 1938, 91.8 percent of the whole American fleet was obsolescent. Between 1917 and 1922, the shipbuilding program of the last war had produced some 2,300 ships and had left America over-tonnaged, with a laid-up reserve, as late as 1936, of 196 old ships. There were only 10 yards with 46 ways which were capable of building 400-foot ocean-going ships. Most of the 60,000 or 70,000 shipyard workers were engaged in naval construction, the rest in ship repairing. Yards, skilled labor, and shipbuilding brains were all lacking.

The Maritime Commission's original program called for 500 fast, modern ships, at the rate of 50 a year, to replace old tonnage and to give the United States a 50 percent share of its peacetime ocean-going trade. The few standardized types which the commission adopted were sleek, mildly streamlined vessels which housed their crews amidships and were better ships from the standpoints of speed, fuel consumption, cruising range, cargo capacity, and safety.

The commission adopted three main dry-cargo types, the C-1's, C-2's, and C-3's, ranging up to 12,500 deadweight tons, and one main tanker type, the T-2's, of 16,500 deadweight tons. All the new types were oil-fired and turbine-driven, with duplicate generators and pumps, gun emplacements, and built-in degaussing belts, for protection against magnetic mines, built in only after war started; and the C-types were fitted with electrically driven cargo winches, extra large hatches with two 5- or 10-ton cargo derricks to each hatch, and forced ventilation of the cargo holds to eliminate the dangers of fire and of "sweating" in the tropics.

In 1938, 18 merchant ships totaling 221,755 deadweight tons were built; in 1939, 28 ships of 341,219 tons. When war started in Europe as Poland was attacked in September 1939, the commission doubled its original long-range program to 100 ships a year, mostly C-types.

At the time Germany launched her attack, the U. S. shipping situation started to change from a surplus to a growing scarcity. In May 1940 the commission doubled its program of C-types and tankers again, this time to 200 ships a year. Actual production in 1940 rose to 54 ships, totaling 637,860 deadweight tons. Shipyard employees were mounting toward a total of 300,000, and a call went out for an additional 200,000 men to begin training for shipyard work. The commission began spreading construction by placing contracts for ships' parts and supplies at 450 factories in 32 states, bringing thousands of inland workers indirectly into shipbuilding.

During the winter of 1940-41, the U. S. policy of defense and aid to the democracies made it clear that more and more ships would have to be built. Accordingly, the President called for still another doubling of the commission's program, this time to 400 ships a year. This demanded a new type of ship, which could be built fast and "by the mile." It was produced with the design of the new Emergency Cargo or EC-2 type, now famous as the Liberty ship.

The Liberty Ship

The Liberty is a single-screw steel ship, powered by reciprocating engines, with an over-all length of 441 feet, a deadweight capacity of from 10,500 to 10,800 tons, and a general cargo capacity of 9,146 tons. It is largely of welded hull construction and of the same high standard as the C-types, but has been stripped of every refinement of design that might slow production. The total "Victory Fleet" of 2,300 ships now scheduled for completion by the end of 1943 includes about 1,500 Libertys, some 500 C-types, 300 tankers, and a few special designs.

The first of the Liberty ships, the Patrick Henry, was delivered December 31, 1941, and by October 1942 there were hundreds at sea. Actual performance has shown them to be sound and safe, quicker to build, cheaper to run, faster, and with from 1,400 to 3,500 tons more cargo capacity than the ships turned out at Hog Island, an emergency yard built near Philadelphia, Pennsylvania, in the last war.

The commission was authorized to place contracts for the first 200 Liberty ships on February 6, 1941. Since existing shipyards had no available ways, contracts were let for the construction of seven yards to provide a total of 131 new ways. By November 1941, 40 yards scattered along the coasts were providing 211 building ways, with 58 more under construction, and six under consideration. Eliminating ways reserved to naval building, there were then in sight over 200 ways for merchant-shipbuilding. Some 500,000 workers were employed by midsummer of 1942.

Ninety-five ships totaling 1,088,000 deadweight tons were produced in 1941. At the end of the year the country was demanding an even faster rate of output. In 1942, a total of 746 ships aggregating 8,089,732 deadweight tons was produced. This record was surpassed during the first seven months of 1943, when 1,037 ships, totaling 10,482,741 tons, were delivered into service.

In vessels of 2,000 gross tons and over, there were then more than 6,800,000 tons of merchant shipping under the American flag; and the commission planned an output of 6 million tons in 1942. But in January the President called for 8 million deadweight tons in 1942 and 10 million in 1943. He has since upped the 1943 quota to 19 million deadweight tons.

By May 1, 1942, the Army and Navy had taken 285 merchant ships, totaling 2,160,000 gross tons and including the super-liner America and more than half of the new C-types.

By July 1943, the U. S. Maritime Commission had approximately 400 ways in 80 yards reserved to merchant building with about 115 ways building Libertys only—an active shipbuilding capacity equal to that of all the rest of the world combined.

Early in 1942, extensive mass production of all-welded ships began. Ships formerly were built up plate by plate on the building ways, and only 800 or 900 men could work in the cramped spaces of the rising hull. Under mass production, sections of the ship are welded together, complete with piping, wiring, and fittings, in the assembly sheds. When the hull is ready for them, giant cranes carry the sections out to the shipway to be welded into place. In the assembly sheds and on the shipways together, between 2,000 and 3,000 men can work with plenty of space for everybody.

The best keel-to-completion time at Hog Island, 20-odd years ago, was 7 months 24 days for the S.S. Cliffwood. The three Liberty ships delivered in January 1942 took about eight months apiece. Average construction time was cut to 108 days (3½ months) in July 1942; 83 days in August. In September 67 Libertys averaged 70 days each, and in November 68 Libertys averaged 56 days each. Average time in July 1943 was about 55 days from the time the keel was laid until the ship was delivered. One of the Kaiser yards on the Pacific Coast, working three shifts a day, seven days a week, turned out 13 of them in November in an average keel-to-completion time of 37.5 days. The same yard, in a special demonstration job, launched the Liberty ship Joseph N. Teal in 10 days. It was completed and delivered four days later, having spent the interval in the fitting-out basin. Another Liberty, the Robert E. Peary, was launched in 4 days 15½ hours and delivered in 7 days 14½ hours.

The Kaiser yards built their first Liberty ship with 900,000 man-hours of work. It took them only 375,000 man-hours to build the Joseph N. Teal, and Kaiser thinks 300,000 man-hours will eventually suffice. With building times coming

down, monthly production has gone up. The figures for ships completed and delivered in 1942 are:

	Liberty ships delivered	*C-type ships, tankers, and special types delivered*	*Total ships delivered*	*Total deadweight tonnage delivered*
January	3	13	16	197,628
February	12	14	26	289,549
March	16	10	26	291,473
April	26	10	36	401,632
May	43	14	57	619,779
June	51	16	67	749,654
July	52	19	71	791,667
August	57	11	68	752,774
September	67	26	93	1,016,112
October	65	16	81	889,737
November	68	16	84	892,536
December	82	39	121	1,197,191
TOTALS	542	204	746	8,089,732

	Libertys	*Others*	*Total Delivered to July, 1943*	*Total Tonnage (DWT)*
January	79	24	103	1,007,680
February	81	49	130	1,235,891
March	103	43	146	1,513,244
April	110	47	157	1,603,307
May	120	56	176	1,782,836
June	115	52	167	1,670,442
July	109	49	158	1,669,341
TOTALS	717	320	1,037	10,482,741

Liberty ships were designed and constructed because, with existing materials and equipment, no other design of vessel could be placed into mass production. Today, in 1943, as more modern propulsion equipment is being made available, some shipyards are switching from production of Liberty ships to the modern, speedy Victory ships. The Victory ship is, in effect, a Liberty ship redesigned to carry propulsive equipment of more than twice as great horsepower, with a consequent increase in speed (more than 15 knots, compared with 11 for the Liberty). The new vessel is of slightly greater beam than the Liberty and is somewhat longer. A complete change cannot be brought about overnight, or even in a single year unless existing conditions change, so while yards will soon begin delivery of Victory ships, Liberty ship construction will not be abandoned in the near future.

The current rate of merchant ship construction is many times larger than the current rate of sinkings. The merchant fleet of the United States is now shipping and delivering cargo in incredible quantities.

NAVAL VESSELS

During the eighteen months preceding Pearl Harbor, the U. S. added less than 300,000 displacement tons to the complement of what was then considered an extremely powerful fleet. But the blow struck by the Japanese on December 7, 1941, changed the picture overnight. During 1942, a total of 900,000 displacement tons was launched, three times as many as in the preceding eighteen months. Combat vessels—battleships, cruisers, destroyers, submarines—made up half of that. Most of the rest consisted of landing craft, just then coming into the naval picture.

But 1943 has been the "harvest year" for the U. S. Navy. Ships that were planned one and two years ago have joined their fighting sisters at sea in 1943. The first six months of the year saw launchings of 100 warships, nearly as many as slid down the ways in the whole preceding year. They were launched at the rate of one every 36 hours. In June alone, 200,000 tons of naval vessels were built.

As Secretary of the Navy Frank Knox has said, the size of the American fleet will be doubled by the end of 1943. The Navy's newest weapons against enemy submarines—escort vessels and small aircraft carriers—have begun to join the fleet in numbers. Plans call for building more destroyer escorts this year than the total number of destroyers in the fleet in 1942. Both types of vessels already have proved their effectiveness in fending off and destroying enemy submarine "wolf packs" infesting the shipping lanes of the North Atlantic.

GROUND ORDNANCE

Production of the actual combat weapons needed to equip America's growing Army and its Allies has also developed at a substantial rate. The average monthly production in 1941 was almost 4½ times that of the last six months of 1940. In turn, the 1942 average monthly production was more than 8 times the 1941 average. Production in this category—including tanks, armored vehicles, artillery, anti-aircraft guns, signal equipment, ammunition, and small arms—continued to rise in the first six months of 1943.

Since the outbreak of the war, America's armament industry has turned out about 160,000 high-caliber artillery for ground armies, nearly 1,300,000 machine guns, and 5 million rifles and sub-machine guns. The U. S. has made almost 165 million rounds of artillery ammunition, not including ammunition for naval guns. Ordnance plants have so far produced the astronomical figure of 22 billion rounds of small arms ammunition—enough to enable U. S. forces to fire almost 1,500 bullets at every soldier in enemy armies. And, despite cutbacks in some categories in which the U. S. is adequately supplied for the moment, the present rate of ammunition production is incredibly high.

The President announced that the U. S. produced 32,000 tanks and self-propelled artillery in 1942. Donald M. Nelson recently indicated that combined Canadian-American production since the war began totaled almost 60,000 tanks and tank chassis. In addition, the U. S. has turned out more than 40,000 scout cars, armored cars, and similar combat vehicles in the same period.

THE FUTURE

War production, while still going up, is not at present going up as fast as it did in the early months of the program. As the U. S. approaches its limits of materials, facilities, and manpower, new gains are increasingly hard to come by.

There is no basis, however, for the notion that war production is now falling off. It is not falling off. It is gaining. The point is it must gain even faster. After a slight slackening in the rate of increase during the early summer months of 1943, output of munitions began to climb again during the late summer and fall months. July saw a 3 percent over-all gain, and the rise in August was even sharper. The accelerated pace of the war, however, means that America's war production must continue to rise through the rest of the year.

America's armed services, facing decisive tests in all parts of the world, have set very high requirements for the production of war material in 1943. These requirements rise sharply from month to month throughout the year. American industry has been asked to match the high rate of rise in requirements with a corresponding rate of rise in output.

There is now but little slack in the U. S. economic system. The relatively painless methods of mobilizing resources by bringing them out of idleness or out of clearly non-essential uses have been largely exhausted. The way toward increased output is now much more difficult, since it will call for a more intensive utilization of resources already employed and since it will involve choices between uses all of which are essential rather than between essential and non-essential uses.

Thus many plant facilities originally planned for the production of one type of armament have been shifted to production of another type, more urgently needed.

Where changing war strategies make readjustments in production programs necessary, the War Production Board is making existing facilities do the job rather than building new ones. Cooperation of the Army, Navy, and WPB in employing available facilities for the common good is going a long way in helping to utilize fully the present enormous productive capacity of the nation without any additional expansion.

Converting manufacturing facilities from one type of production to another not only helps to solve the highly complex problem of making certain critical components available when needed but also does so without expending the nation's resources for new plants and tools.

No purchase of new machine tools, machinery, or equipment, or erection of buildings will be authorized by WPB until it has been conclusively proved that the work cannot be done by existing facilities. All previously approved facilities projects are being re-examined to determine whether the need for them cannot be eliminated by a greater use of present structures, plant capacities, machine tools, and equipment.

At the same time, scheduling, both of raw materials and of parts, must now be even more precise than it has been in the past. To cite just one example, the enlarged aircraft production goals for this year and the next, calling both for heavier planes and a greater volume, can be met only through the most exact scheduling of the output of the parts and pieces needed in their manufacture.

There are at present no serious bottlenecks in the assembly of such fundamental plane parts as propellers, engines, or air-frames. However, temporary but serious minor bottlenecks, in smaller and less obvious categories, have not yet been entirely overcome. The specific shortages differ from month to month but will continue to arise until production and distribution of all plane parts and pieces are exactly balanced with requirements.

While ever-growing demands for war production must be satisfied, demands for essential consumer goods necessary for the efficient functioning of the civilian economy must also be met. A continuing drop in the quantities of goods which have made up the standard of living of the American public must be expected during a total war, for every possible resource must be directed toward military victory. However, it is the objective of the War Production Board to provide the essentials that will permit the civilian population to maintain itself in a sound and vigorous condition in order to produce for war with maximum efficiency.

The civilian standard of living has been high during the past three years, and despite shortages in specific items and areas the general level at which products and services have been supplied to civilians has been adequate to date. Until the middle of 1942, the war program left enough resources free to supply aggregate civilian demands at an expanding volume; and the increased individual incomes obtained from war production and related activities ensured that these expanding demands would result in actual purchases. Total civilian consumer expenditures on goods and services rose to unprecedented heights in 1941, even after allowance for price increases, and have as yet fallen but little since then. Expenditures on goods alone fell a little in 1942 as compared with 1941, but expenditures on services increased steadily. After allowing for price changes, the real volume of consumer expenditures (in 1939 dollars: average prices for these items in 1942 were 17.7 percent higher than in 1939) was, in billions of dollars:

Year	*Goods*	*Services*	*Total*
1939.....	39.0	22.7	61.7
1940.....	41.3	23.8	65.1
1941.....	45.1	24.9	70.0
1942.....	43.4	26.2	69.6

From these figures, it would be easy to conclude that the over-all civilian economy had felt virtually nothing of the impact of the war, and that the prospects for its future are good. This is not the case. These figures conceal many adverse developments on the civilian front which will soon become critical if not met promptly. Inventories are falling, manpower available for civilian production and distribution will be seriously reduced, and peak war schedules and heavy exports in order to rehabilitate areas liberated from enemy control will result in additional claims on America's national resources. Besides these storm signals, the consumer expenditure figures also fail to take into account many other salient facts.

(1) Many civilian goods which bulked large in 1939 are no longer produced for civilians. The last passenger automobiles for civilians were turned out on January 21, 1942; radios on April 15, 1942; mechanical refrigerators on April 30, 1942; vacuum cleaners on May 1, 1942; washing machines on May 15, 1942; and most electrical appliances were also stopped in May 1942. Practically all civilian home construction except that sponsored or approved by the National Housing Agency was prohibited in April 1942. Production of hundreds of other metal goods has also been stopped entirely or drastically curtailed.

(2) There has been a general tendency, to be expected when prices are controlled but costs are rising, for the quality of products to fall off. These deteriorations cannot be measured and fully taken into account in statistics of consumer expenditures adjusted for changes in price.

(3) Some of the increases in consumer expenditures are directly traceable to increased civilian needs arising from the war program. In this class are increased outlays on food and transportation due to the increased number of people engaged in active work and new outlays on household goods by workers who move to war jobs in other localities and cannot transport their own furnishings.

(4) Since July 1942, consumer expenditures in many durable goods have been maintained by selling off inventories—inventories which now are near depletion in a number of important articles. Repair and replacement parts for civilian metal goods are in many instances inadequate and in all of these fields and in consumer services generally manpower shortages seem likely to raise the most serious difficulties.

Another primary objective is to re-direct production into the low-price volume sales end of many civilian products. A constant watch on price levels and the volume of production at each level will be made to carry out this policy.

The complex problem of distribution to the end that all localities of the United States have a proportionate share of scarce items likewise remains to be solved. In the past the distribution of consumer goods from the factory to the consumer and the operation of the wholesale and retail trades from the standpoint of meeting essential needs have received less attention than production. In the future, because of the declining volume of civilian goods and the prospective shortage of manpower, the emphasis on distribution will be substantially increased.

POWER

COMMON ELECTRICAL TERMS

VOLT—the measuring unit of electric force, corresponding roughly to pressure in a water pipe.
AMPERE—unit of amount of electrical current, corresponding roughly to the quantity of water flowing through a pipe.
WATT—unit of capacity to do work. It is 1 ampere flowing under a pressure of 1 volt.
KILOWATT (kw)—1,000 watts, or approximately 1⅓ horsepower.
KILOWATT-HOUR (kwh)—unit of electric energy produced or consumed. It is capacity (kw) multiplied by time of operation (h).

Electric power is one of the chief factors that make modern civilization work. It lights homes, farms, streets, office buildings, and factories. It runs many of our transportation facilities. Most vital of all, it operates the machines that produce or fabricate the materials and articles necessary for peacetime living and wartime fighting. Without power, there could be no modern industry.

In 1941, the United States produced 168,000,000,000 kwh of power. Germany, Italy, and Japan together produced but 99,000,000,000 kwh. That is one measure of the U. S. war potential.

Add the 97,000,000,000 kwh which Great Britain, Russia, and Canada produced in 1941, and the United Nations power output becomes more than 2½ times as great as that of the enemy.

The total U. S. production for public use for the twelve-month period ending June 30, 1943, was 200,858,000,000 kwh. Axis power production rose too, but the best estimates place combined German, Japanese, and Italian production at 166,000,000,000 kwh. Figures for U. S.'s Allies are no longer made public.

U. S. POWER ANALYZED

The installed capacity of all electric power plants (central stations) operated by utility systems in the U. S. amounted to 48,100,000 kw on July 1, 1943. In addition, approximately 11,000,000 kw were operated by industrial establishments generating energy for their own use. If every generator ran at full capacity every hour of the year, the U. S. would produce more than 520 billion kwh in 1943. But since power needs fluctuate widely during the hours of the day and night and the seasons of the year, and since there must always be a substantial reserve capacity to handle breakdowns of equipment and other emergencies, no such rate of annual generation can be achieved. Unlike manufactured goods, electric energy cannot be stored economically and must be generated at the same time as its consumption takes place.

In 1929 each kilowatt of installed capacity produced an average of 3,033 kwh of electrical energy. In 1932, because of the depression, each kilowatt produced only 2,289. In 1940, each kilowatt produced 3,482 and in 1942 the average rose to about 4,100. This increased output per unit of capacity is the result of the increased demand for electric energy on the part of U. S. industries operating two and three shifts for the production of munitions and materials of war. It also followed from the more extensive interconnection between electric systems and the utilization of the diversity in their energy requirements.

In the last war, interconnection between utility systems and even between power plants was in an elementary state. If an accident put a generator out of commission, the electric system might have had to cut off many of its customers for long periods of time. If an unexpected demand exceeded the capacity of the station, there might be no way to supply the needed power. Today nearly 300,000 miles of high-voltage transmission lines, more than double the mileage in service 20 years ago, make such difficulties in the supply of power less likely to occur.

More than two-thirds of U. S. central station energy is generated by steam plants using coal; somewhat less than one-third by hydroelectric (water-power) plants; a small amount by internal-combustion engines. Almost seven-eighths of U. S. central station power capacity is privately owned; federal government projects (chiefly hydroelectric), plus municipally owned utilities, make up the balance.

Geographically, the power-producing centers are nearly the same as the centers of U. S. industrial activity. The Middle Atlantic states of New York, New Jersey, and Pennsylvania account for 23 percent of the total U. S. power capacity. The same is true of the East North Central states of Ohio, Indiana, Illinois, Michigan, and Wisconsin. The South Atlantic states account for 13 percent, the Pacific Coast states for 10 percent, and the remaining states together for 31 percent.

Of total steam capacity, the East North Central states have about 30 percent, the Middle Atlantic 28 percent, the South Atlantic 11 percent. But in hydrogenerating capacity the leaders are the Pacific states, with 26 percent of the U. S. total; the South Atlantic states, with 17 percent; the eight Rocky Mountain states, with 14 percent; the Middle Atlantic states, with 12 percent; and the East South Central states (Kentucky, Tennessee, Alabama, Mississippi), with 13 percent. In only three areas—Mountain, Pacific, and East South Central—does hydrogenerating capacity exceed steam capacity.

PRIVATELY OWNED UTILITIES

As of July 1, 1943, private utility companies owned about 38 million kw of the total U. S. central station capacity of 48 million kw. Electric railways and isolated mining and manufacturing plants add about another million kw to the privately owned total. This represents a gain in capacity of about 230 percent since 1917, when the United States entered the last war. Private utility output today is some 400 percent greater than in 1917.

Reflecting the greater power demand as America geared up its war industries in 1941, private utilities showed a 15

percent increase in production over 1940, 10 percent increase in 1942 over 1941, and an estimated increase of 17 percent in 1943 over 1942.

The recent history of private U. S. utilities has been concerned for the most part with steam-generated power. The enormous capital investment and the high fixed charges entailed in large hydroelectric projects have resulted in the gradual abandonment of that field by private utilities. Today, not much more than one-fourth of U. S. power capacity owned privately is hydrogenerated, and government-owned hydrogenerating capacity is increasing rapidly.

NIAGARA FALLS

One of the greatest U. S. centers of privately owned power, however, is largely hydroelectric. This is the Niagara Falls region.

Between Lake Erie and Lake Ontario, along the U. S.-Canadian border, the Niagara River has an average flow of 225,000 cubic feet of water per second and a usable natural drop of 314 feet. Here is a potential source of almost five million kw of power. So far, about one million kw have been developed, 416,000 kw on the American side of the Falls and 621,000 kw (part of which is supplied to the American power system) on the Canadian side. In addition the Falls are interconnected with a 550,000 kw steam plant at Buffalo, New York. Nowhere has the famed scenic beauty of the Falls been impaired.

The Niagara development rapidly attracted a unique concentration of electrochemical and electrometallurgical industries. For industrial processes requiring large amounts of electric energy, it offered low-cost power, specialized labor, and easy access to essential material sources and markets.

Now, in this huge power pool, there has sprung up one of the greatest concentrations of war industry in America. Its manufacturers are making aluminum, alloy steels, abrasives, and special chemicals. War-supply contracts in the Buffalo-Niagara area exceed $2,250,000,000, and sales of industrial power on the U. S. side of the river were approximately 5,578,000,000 kwh in 1942.

FEDERAL POWER PROJECTS

On July 31, 1943, nine million kw of capacity were classed by the Federal Power Commission as "public" in ownership. Of this total, nearly five million were in federal government power districts and authorities, over three million in municipal utilities, and less than one million in non-central stations (largely for municipal uses). Federally owned capacity had increased from a total of 1,650,000 kw in 1939 to 1,944,000 kw in 1940, to 2,371,000 kw in 1941 and nearly 4,000,000 kw by July 1, 1943.

Though the power production created and supervised by these federal agencies is but a small part of the U. S. total, these are the projects which are being expanded most rapidly under the spur of war. Stupendous government installations in such areas as the Tennessee, Colorado, and Columbia valleys, by carrying much of the load, are making a mighty contribution to the United Nations cause.

Four federal agencies are concerned with this nationally owned power: the Department of the Interior, the Tennessee Valley Authority, the Department of Agriculture, and the Federal Power Commission.

DEPARTMENT OF THE INTERIOR

Through its Bureau of Reclamation, the department is engaged in reclaiming land and natural resources in the Western states and in constructing and operating irrigation and power projects. Through the Bonneville Power Administration, it constructs, operates, and maintains power projects, transmission lines, and other facilities for marketing surplus energy generated by the Bonneville and Grand Coulee developments.

Boulder Dam, built by the Bureau of Reclamation, is the highest in the world, towering 726 feet from foundation rock to the roadway on its crest. The dam impounds a reservoir covering 229 square miles with 32,359,274 acre-feet of water. (An acre-foot is the amount of water which will cover one acre, one foot deep.) When fully developed, the total generating capacity of this project will be 1,835,000 kw.

Today, Boulder Dam is supplying more than half the power for Southern California, where nearly 3½ million people reside. Boulder's importance to U. S. war production is illustrated by the fact that the area it supplies contains the country's largest concentrated group of airplane manufacturers. In addition, an aluminum plant and a giant magnesium plant, both in Nevada, are drawing on Boulder Dam power.

Two gigantic dams, Bonneville and Grand Coulee, have been built by the federal government to develop the resources of the Columbia River Valley in Oregon and Washington. Bonneville, the first of the two, built by the Corps of Army Engineers (War Department), now has a capacity of 518,400 kw., bringing the rated capacity of the Bonneville Administration to 1,228,400 kw. Grand Coulee, constructed by the Bureau of Reclamation, is the most massive man-made concrete structure in the world. When its full generating capacity of 1,944,000 kw is installed, it also will be the biggest power plant in the world. Today, its capacity is over one-half million kw. The dam has created a narrow lake 151 miles long in the Columbia River canyon. Here 10 million acre-feet (3,250,000,000 gallons) of water are impounded—an enormous supply of potential energy.

Long before war came to the United States, the Bonneville Power Administration, which builds the transmission facilities and sells the power from these two projects, with a staff of electrometallurgical, electrochemical, and industrial-research experts, was contributing toward the industrial development of the Columbia River area. Today, 90 percent of Columbia River power is being used by shipbuilding, chemical, aluminum, ferrosilicon, and other vital war industries. Power provided by the Bonneville Administration makes possible the production of about one-fourth of the national output of aluminum, and the Northwest's production of aluminum today is greater than that of the entire United States in 1939. Contracts for Bonneville power have been entered into by such great war industries as the Aluminum Company of America, the Electro-Metallurgical Company, the Reynolds Metals Company, the Oregon Shipbuilding Company, the Pacific Carbide & Alloys Company, and the Pennsylvania Salt Company.

In addition to Boulder, Bonneville, and Grand Coulee, the Department of the Interior between 1933 and 1942 completed 41 other power dams. Today it operates installations with a capacity of more than 1¾ million kw. When power projects now under construction are completed, this total will be increased to nearly 3½ million kw.

TENNESSEE VALLEY AUTHORITY

This is a federal corporation charged with the complete development of the Tennesse River system for navigation, flood control, and the production of electrical energy. Today TVA's 18 big dams, its steam plants, chemical plants, huge

power transmission system, research laboratories, 650-mile navigation channel, and its 30,000 employees are all enlisted in war production.

Since its establishment in 1933, TVA has maintained the ammonium nitrate plant, erected during the last war at Muscle Shoals in Alabama, in stand-by condition. A portion of the plant was adapted to production of high-analysis phosphatic fertilizers. In 1940 modernizing work was begun at Muscle Shoals, and in 1943 it turned out considerable quantities of explosive ingredients daily. Other TVA plants are producing elemental phosphorus for chemical warfare and calcium carbide for synthetic rubber. TVA is constructing plants to produce food for America and her Allies; constructing and managing houses for workers in war industries; mapping strategic areas for the War Department; and locating essential wood supplies for ships, planes, leather tanning, cantonments, and house developments. TVA research has opened up ways to use domestic clays for the production of aluminum and to use domestic kaolins in porcelain airplane and tank spark plugs.

The TVA power-generating system, one of the largest in the Western Hemisphere, has an installed capacity of 1,636,000 kilowatts. New capacity, specifically designed to supply war production needs, is being added. The full generating capacity exceeds 2,800,000 kilowatts.

DEPARTMENT OF AGRICULTURE

Through its Rural Electrification Administration, the department facilitates the introduction of electric service to rural areas. It lends the entire cost of building rural electric distribution systems, including, where necessary, generation and transmission equipment. (See page 67.)

Although designed as a peacetime project, REA has made power available to some war industries in areas previously unelectrified. And REA-financed lines are serving Army camps, Navy, and Coast Guard stations, mercury and manganese mines, oil wells, coal mines, cement plants, carburetor factories, and many other types of industries. Most of these are small, compared with the huge war plants of Detroit and other great industrial centers. But, in the aggregate, they are making an important contribution to total U. S. production.

FEDERAL POWER COMMISSION

The commission has wide jurisdiction over power systems throughout the country. Its authority includes the comprehensive study of river basins with special reference to potentialities for hydroelectric power; the licensing of hydroelectric power developments by other than federal agencies in streams subject to federal jurisdiction; the regulation of electric utilities and of natural gas companies engaged in the transmission and sale of electricity and natural gas in interstate commerce; the planning and encouragement of interconnection and coordination of electric facilities along area-wide and regional lines; and the collecting and organization of statistical information covering the entire power field. (See page 21.)

The commission also has power which it can exercise during the continuance of war or other emergency to order such interconnection of electric facilities and such generation and delivery of electric energy as may be required to meet the emergency.

The commission has played an important part in bringing about the pooling of power in various parts of the country to insure the maximum use of electrical facilities in supplying war requirements.

* * *

LABOR

With the increase in the size of the labor force, there has also been an increase in the activities and memberships of labor organizations. Almost one-third of the non-agricultural workers in the United States belong to some union. About 6,631,100 are members of the American Federation of Labor; about 6,435,000 belong to the Congress of Industrial Organizations; more than 1,500,000 belong to independent labor organizations. The total membership in both affiliated and independent labor organizations is over 14 million.

Some of the largest unions, with their affiliations, follow. Membership figures are the latest available in 1943; some of them are estimates.

AMERICAN FEDERATION OF LABOR

(106 national and international unions, 1,440 local unions; about 6,631,000 members):

International Brotherhood of Teamsters, Chauffeurs, etc.	506,000
United Brotherhood of Carpenters and Joiners	600,000
International Association of Machinists	625,000
Hod Carriers and Common Laborers	284,000
Hotel and Restaurant Employees	242,000
International Ladies' Garment Workers' Union (ILGWU)	250,000
Brotherhood of Electrical Workers	300,000
Brotherhood of Railway Clerks	225,000
Brotherhood of Painters of America	123,000
Musicians Union	100,000
Retail Clerks Association	100,000

CONGRESS OF INDUSTRIAL ORGANIZATIONS

(39 national and international unions, 307 local industrial unions; about 6,435,000 members):

United Automobile, Aircraft, and Agricultural Implement Workers	1,000,000
United Steel Workers of America	850,000
United Electrical, Radio, and Machine Workers	450,000
Textile Workers of America	400,000
Amalgamated Clothing Workers of America (Men's Clothing)	275,000
Industrial Union of Marine and Shipbuilding Workers	400,000
United Retail, Wholesale, and Department Store Employees	100,000
United Rubber Workers	130,000
International Union of Mine, Mill, and Smelter Workers	100,000

INDEPENDENT UNIONS

(Not affiliated with either AFL or CIO—principal independents):

Railway Brotherhoods (The "Big Four"):	
Brotherhood of Railroad Trainmen	180,000
Brotherhood of Locomotive Firemen and Enginemen	115,000
Brotherhood of Locomotive Engineers	75,000
Order of Railway Conductors	50,000
United Mine Workers of America	600,000
National Federation of Telephone Workers	175,000
International Union of Brewery Workers	40,000
International Typographical Union	85,000

TYPES OF UNION ORGANIZATION

The two basic types of union in the United States are the *craft union* and the *industrial union.* In general, AFL is made up of craft unions, CIO of industrial unions. The craft union embraces workers following one specific trade, such as machinists, iron molders, pattern makers, etc., and bargains with employers on matters concerning its craft. Members of craft unions are not restricted to any one plant or industry, and many craft unions may be represented in a single plant. An industrial union is an association of all the workers in any single industry, such as the brewing industry, garment industry, mining, etc. Workers who follow many different crafts, employed in the one industry, all belong to the same union, which bargains for all its members at one time.

"National" unions (which may be either craft or industrial, and affiliated with either AFL or CIO, or unaffiliated) have members in the United States only; "international" unions have members also in Canada.

CIO includes "local industrial" unions, which are industrial unions operating only in a certain area.

AFL has "federal" as well as "local" unions. Federal unions include members of several crafts in cases where there are not enough members of one craft to form a local union. The federal unions are in effect something like industrial unions, and may elect to remain so rather than to split up into craft locals. AFL's "local" unions have memberships all of which are engaged in a single trade.

HISTORY OF THE U. S. LABOR MOVEMENT

Sporadic efforts at labor organization in the United States were made as early as 1786 by printers and in 1794 by shoemakers. But it was not until 1827, when the Mechanics' Union of Trade Associations was formed in Philadelphia, Pennsylvania, that a number of groups or crafts were effectively brought together in one organization. By 1836 the unions claimed a membership of 300,000, but the depression of 1837 and its accompanying unemployment acted to break up the growing labor movement.

In the 1850's there were further efforts to build up national organizations, and the printers and hat finishers formed successful ones, followed by the machinists, molders, and blacksmiths.

Then in the 1860's came attempts to form nation-wide associations of trades in some sort of organization which would afford mutual protection. Several more or less all-embracing organizations were formed, most of them short-lived. The Industrial Assembly of North America was organized in 1864, and the National Labor Union two years later. Neither was successful.

The Knights of Labor was organized in 1869 by the Philadelphia garment cutters. At first it was a secret society, but it soon dropped the policy of secrecy and sought to expand into one big labor organization embracing all workers, skilled and unskilled, without regard to creed, race, or sex. At its peak it claimed a membership of 700,000, but an unwieldy internal structure and a heterogeneous membership led to its decline during the latter part of the 1880's.

AMERICAN FEDERATION OF LABOR

Officially, AFL puts the date of its origin in 1881, when leaders of several craft unions, including molders, cigar makers, printers, and iron and steel workers met in convention at Pittsburgh, Pennsylvania, and formed the Federation of Trades and Labor Unions. A year later this name was changed to the Federation of Organized Trades and Labor Unions of the United States and Canada.

The present name was adopted in 1886, at a convention held in Columbus, Ohio. Samuel Gompers, secretary of the legislative committee of the Federation of Organized Trades and Labor Unions, became the first president of AFL. Its first constitution was adopted at the next convention, held in Baltimore, Maryland.

The purposes and objectives of AFL have not changed substantially since they were outlined as follows in the constitution:

1. To encourage and form local trade and labor unions and to protect their interest and membership through the organization of city, central, trade, and labor unions in every city, state, territory, and province.

2. To establish national and international trade unions based upon strict recognition of the autonomy of each trade.

3. To establish departments composed of national and international unions affiliated with AFL and belonging in the same industry.

4. To aid and encourage the sale of union-label goods and to secure legislation in the interest of the working people and to influence public opinion by peaceful and legal methods in favor of organized labor.

5. To aid and encourage the labor press of America.

Union organization showed only moderate gains in the decade following the organization of the AFL, and in 1897 membership in that organization was but slightly over a quarter million while total union membership was about 450,000. The years of the Spanish-American War and the Theodore Roosevelt administration, however, brought prosperity to labor as well as to business, and by 1904 membership in the AFL had trebled; on the eve of the war of 1914-18, it reached 2 million. By 1920 it had soared to over 4 million—a number not to be reached again for twenty years.

Meanwhile Congress had shown itself increasingly aware of the labor problem. As early as 1888 Congress had enacted a Railroad Arbitration Act, providing for voluntary arbitration of railroad disputes under government auspices. A decade later came the Erdman Act which made the first provision for actual mediation and conciliation activities by the government.

The U. S. Department of Commerce and Labor, established in 1903, was split into the present two departments in 1913, when William B. Wilson became the first Secretary of Labor. In the same year the mediation and conciliation activities set up under the Erdman Act were transferred to the new Department of Labor, and the machinery was improved and strengthened by the granting of more authority and more funds. In 1914 the Clayton Anti-Trust Act specifically provided that anti-trust laws could not be construed to forbid organization of labor unions or to restrain their legitimate activities.

Trade union membership in 1916 had reached 2,773,000. When the United States entered the war the resulting industrial boom in war goods increased employment and stimu-

lated the growth of unions—union membership topped three million in 1917 and by 1920 it had climbed to 5,047,800.

With the collapse of the postwar boom in 1921 and the increasingly serious unemployment situation, unions suffered severe losses in membership. After the 1929 depression there was further depletion. In 1929 membership was 3,442,600 and by 1933 it had dropped to 2,973,000. From 1929 to 1933, when general business conditions were depressed and labor unions were losing membership, there were relatively few strikes, but these few were fought with considerable vigor, and there was increased use of the injunction against labor unions engaged in strikes and organizing activities. The Norris-LaGuardia Act of 1932 strictly limited the use of such injunctions in labor disputes and contributed substantially to labor-industrial peace.

LABOR MOVEMENT SINCE 1933

Enactment of the National Industrial Recovery Act (NIRA) in the spring of 1933, including the famous section 7-a, which guaranteed the right of employees to organize into unions of their own choosing and to bargain collectively with employers, helped revive trade unionism.

The rapidity and the nature of the organizing activities during the life of the National Recovery Administration led to the formation of a large number of federal labor unions chartered directly by AFL. From June 1933 to October 1934, AFL organized and chartered 106 federal labor unions in the auto industry, 75 in rubber, 30 in the cement industry, and 20 in aluminum. The total number of affiliated trade and federal labor unions increased from 673 in 1933 to 1,788 in 1934. In the same period the national and international unions affiliated with AFL also registered substantial gains in membership: The International Ladies' Garment Workers' Union increased its membership from 125,000 to 150,000; the Electrical Workers went from 94,000 to 114,000; the Machinists increased their membership from 65,000 to 82,000. The upward trend was apparent in nearly all unions.

NIRA was invalidated by the Supreme Court in 1935. However, the National Labor Relations Act was passed in the same year, and organized labor continued to gain ground. The National Labor Relations Act, also known as the Wagner Act, affirms the right of employees to full freedom in self-organization and in the designation of representatives of their own choosing for the purposes of collective bargaining, and it authorizes the National Labor Relations Board to conduct secret ballots for the determination of employee representatives. The act also declares unlawful any labor practices which abridge or deny the right of collective bargaining.

Under NIRA and the National Labor Relations Act many unions made spectacular gains. By 1937 the Teamsters Union had tripled its 1933 membership, the Machinists and the Electricians had approximately doubled theirs, and the Hotel and Restaurant Employees Union had increased from about 23,000 in 1933 to 107,000 in 1937.

DIVISION IN THE LABOR MOVEMENT

In 1935 the Executive Council of AFL granted charters to the United Automobile Workers and the United Rubber Workers, both designed to meet the growing problem of mass production and its challenge to the old craft organizations. The original AFL charters granted to the Auto Workers and to the Rubber Workers specifically excluded certain skilled craftsmen who came under the jurisdiction of previously established craft unions.

The issue of industrial versus craft organization was now becoming crucial. In 1935 opposition to industrial organization took the form of a minority report by craft unionists through AFL's resolutions committee protesting industrial unionism and calling for "unrestricted charters" to organizations in mass-production industries. This would have meant a return to craft organization of the large industries. The move was rejected by the convention, but the problem remained unsettled and became more than ever a burning issue.

A few weeks later, leaders of 10 unions affiliated with AFL (among them the United Mine Workers, Amalgamated Clothing Workers, International Ladies' Garment Workers, United Textile Workers, and Mine, Mill, and Smelter Workers) met and formed the Committee for Industrial Organization (CIO). The stated purpose was to encourage and promote organization of the workers in mass-production and unorganized industries, and to encourage their affiliation with AFL. The original unions were later joined by the United Auto Workers, the United Rubber Workers, and others.

There were immediate protests from other AFL unions. The CIO unions were suspended by the executive council, and their delegates were not seated at the next AFL convention.

FORMATION OF THE CONGRESS OF INDUSTRIAL ORGANIZATIONS (CIO)

The unions belonging to the Committee for Industrial Organization held their own convention in November 1938, changed the name of the association to the Congress of Industrial Organizations, and thus formed an independent group of affiliated unions. The aims of CIO, as outlined in the constitution, are:

To bring about the effective organization of the working men and women of America regardless of race, creed, color, or nationality, and to unite them for common action into labor unions for their mutual aid and protection.

To extend the benefits of collective bargaining and to secure for the workers means to establish peaceful relations with their employers by forming labor unions capable of dealing with modern aggregates of industry and finance.

To maintain determined adherence to obligations and responsibilities under collective bargaining and wage agreements.

To secure legislation safeguarding the economic security and social welfare of the workers of America.

CIO has carried on energetic organizing drives, especially in automobiles, textiles, and steel. Some of these campaigns, notably those in steel and textiles, were carried on by organizing committees rather than local unions. These organizing committees gave way to permanent unions when the organizing had proceeded far enough to give permanent organizations the necessary stability. Thus the Steel Workers Organizing Committee, once the steel workers were fairly well organized, became the United Steel Workers of America.

RECENT LABOR LEGISLATION

Labor organizations have done much directly to promote the welfare of their members. But basic to the welfare of all workers is national legislation providing a firm foundation for a continuous forward movement in the fields of civil rights, education, security, and a generally improved status of the working force of the nation.

In the past decade a number of other significant laws in addition to the Wagner Act have been passed, usually

with the encouragement and approval of labor organizations.

The Social Security Act of 1935, for instance, provided for federal aid to states for the needy, aged, dependent children, blind persons, maternal and child welfare, vocational rehabilitation, and public health work. It included a national system of old-age benefits established by the federal government. For the first time, the federal government aided in providing unemployment benefits.

The Byrnes Act of 1936, aimed at professional strike-breaking agencies, forbade the transportation, by companies engaged in interstate commerce, of persons used to intimidate pickets. It was effective in reducing violence in strikes.

The Walsh-Healy Act of 1936 designed to improve working conditions in plants holding government contracts, has four principal provisions:

1. Employers holding government contracts must pay employees at a wage rate not less than the minimum wage set by the Secretary of Labor as the prevailing rate for the particular type of work.
2. A basic eight-hour day and 40-hour week must prevail for employees of government contract holders, with not less than time-and-a-half for overtime.
3. Child labor and criminal labor must not be employed in manufacture of goods under government contract.
4. Working conditions must not be unsanitary or hazardous in plants working on government orders.

The Fair Labor Standards Act of 1938 (sometimes called the Wage-Hour Law) embodies three main provisions:

1. It places stringent regulations on the use of child labor in the manufacture of goods produced for interstate commerce.
2. It establishes a basic 40-hour week with time-and-a-half for overtime in businesses engaged in interstate commerce. (Note that it does *not* limit the number of hours a man may work in a week, but only provides for overtime pay for all hours above 40.)
3. It provides a structure for the establishment of minimum wages originally based upon prevailing rates in various industries and in various parts of the country, but gradually increasing, with the objective of a universal minimum by 1945, of 40 cents per hour for all businesses in interstate commerce.

States are permitted to set higher-than-federal standards and to regulate purely local business that would not be covered by federal law because it is not in interstate commerce. All states have agencies which administer labor laws, and more than half have enacted minimum wage laws for women. Two territories have passed wage and hour laws. The maximum-hour laws of the states are uneven both as to standards and as to coverage. Generally they apply only to women and minors, and to them only in a varying list of specified occupations. Every state has child-labor and school-attendance legislation, again with varying standards. Workmen's compensation laws have been passed in every state and territory except Mississippi. The states have also adopted safety and health regulations for industry, though these are often inadequate and vary considerably from state to state.

Most recent labor law is the Smith-Connally anti-strike measure, enacted on June 25, 1943 by Congress over the opposition of the labor unions and the President's veto. Known as the War Labor Disputes Act, the measure requires 30-days' notice on the part of a union before its members take a strike vote, and it authorizes criminal penalties for those who instigate, direct, or aid strikes in government-operated plants or mines. The measure is still so new that all its implications are not yet clear.

The national conferences on labor legislation held annually by the U. S. Department of Labor since 1933 have contributed to the development of closer relationships between state and federal agencies. Concurrent with federal activity in the field of labor law, many state laws have been revised, strengthened, and extended, and many new laws passed. Administration, too, has improved notably in many states. Federal cooperation and guidance are rendered largely by the Department of Labor.

MACHINERY FOR SETTLEMENT OF LABOR DISPUTES

The *U. S. Conciliation Service*, in the Department of Labor, acts as a clearing ground for most industrial disputes in peace as well as in wartime. In the fiscal year ended June 30, 1941, when the nation was at peace, this service handled 5,599 cases involving 3,446,157 workers, disposing of nearly all cases through signed or verbal agreements and referring the remaining cases to other government agencies for settlement. The work of the service has increased since the United States entered the war; during 1942, it handled 12,677 cases involving 8,677,333 workers and certified 1,076 of these to the NWLB. This should not be construed to mean that there have been more disputes since the nation went to war—there have been fewer. It only means that more cases have been brought to the Conciliation Service—and more have been settled by conciliation.

The *National Labor Relations Board* adjudicates cases involving collective bargaining, as provided in the National Labor Relations Act, already referred to. (Only railroads, in interstate industry, are exempt from NLRB jurisdiction. Their disputes are handled by the *National Mediation Board*, created under the Railway Labor Act.) NLRB had conducted 13,727 elections by June 1943, in which almost 4 million votes were cast by workers to select the unions they wished to represent them in collective bargaining with their employers.

In addition to these federal agencies, most states have their own separate machinery for mediating industrial disputes.

The primary task of the *National War Labor Board* is to adjudicate all disputes on matters of wages, hours, and working conditions affecting war production plants. NWLB consists of 12 members, four each representing employees, employers, and the public. William H. Davis, public member, is the chairman. NWLB rarely intervenes on its own motion in industrial disputes. Cases must ordinarily be certified to it by the Secretary of Labor (through the Conciliation Service) before it can act.

LABOR POLITICS

In the United States it is almost impossible to isolate the "labor" viewpoint as such from that of the population as a whole. Labor does not think, act, or vote as a unified body. If it did, it obviously could control all elections and all public policy. The 14 or more million union members alone could be reasonably certain of swinging a national election if they all voted one way. However, few unions or union leaders control their entire membership, and the union leaders themselves have been divided on national issues in the past few elections. The strongest political action on the part of labor in the 1942 congressional and gubernatorial elections was the large vote (over 400,000)

polled by the American Labor Party in New York State, the only state in which the party ran candidates. And this total does not represent a majority of the working people in the state.

This does not mean that labor has not influenced politics and legislation in the United States. Nearly every important piece of labor legislation already referred to in this chapter had the enthusiastic backing of labor groups, and this backing unquestionably did much to help pass the legislation. In many cases labor organizations have pioneered in suggesting and promoting social legislation. Both AFL and CIO have staffs which keep in close touch with legislative developments in Washington and in various states and report on proposed laws to their memberships and the public.

AMERICAN LABOR PRESS AND RADIO

There are more than 250 daily, weekly, and monthly publications, in addition to countless "shop papers," entirely concerned with labor and labor interests. The U. S. Department of Labor publishes the Monthly Labor Review, which carries statistical summaries and articles on various phases of labor problems, and the Labor Information Bulletin. CIO and AFL each publish several regular periodicals. Daily or weekly newspapers devoted to labor matters are published in many large cities; the larger unions all publish periodicals of some sort for their membership. Thus U. S. working people are exceptionally well-informed on matters concerning their own welfare and organizations. Many of these publications are available generally, and non-union workers can get them as well as union members.

The number of labor-sponsored radio programs has increased greatly in the past 10 years. Labor organizations operate stations in many American cities, including powerful WCFL in Chicago. In addition, a great many labor programs are produced on networks and individual stations regularly.

UNION ACTIVITIES FOR MEMBERS

Many American labor unions have extensive educational programs for their memberships, conducting classes, forums, and discussion groups, bringing in lecturers, showing educational films, and holding "institutes" on important current problems. The International Ladies' Garment Workers' Union has one of the more ambitious of these programs. Thirty-three locals and joint boards conduct their own journals. Forty-four locals and joint boards in 30 cities maintain their own libraries. In 1941-42 nearly 20,000 members took part in classes operated by the union. Many members won scholarships to labor colleges. ILGWU is responsible for pamphlets, books, phonograph records, sheet music, plays, musical reviews, and film-strips for its membership.

Provision of adequate recreational facilities for city workers has become an accepted union activity, and many labor unions run summer camps for their members.

Life-insurance and health-insurance plans of various kinds are provided by many American unions for their members. "Group" life-insurance policies, far less expensive, are replacing the old "industrial" policies which formerly were commonly sold to low-income workers. Hospitalization plans, which provide adequate hospitalization in emergencies for a very low yearly cost to members of a union, are now widespread in the United States.

There are four labor banks in the country, in Chicago, Newark, New York, and St. Louis. Stock in these banks is owned in part or entirely by union members—banking facilities are open to all. Total deposits in the four banks on June 30, 1942 were $28,967,173, a 7.6 percent increase over the preceding year.

Some unions, such as the Amalgamated Clothing Workers, have built or financed housing projects for their members in areas where housing facilities have been inadequate. In other areas, unions have taken the lead in working for better housing, public and private. In the past ten years especially, unions have worked for public housing projects for workers where these were needed.

In general, American labor unions recognize that the social as well as the economic welfare of their members is a legitimate and fertile field for union activities.

LABOR AND THE WAR

Labor's contribution to the war program, and the determination of America's workers to win the war and secure the peace, are the topics which have recently dominated both the CIO and the AFL conventions. President Roosevelt, in a message to both labor groups, said:

"Everywhere, during my recent inspection trip of war activities, I found the workers doing all that was laid out for them and more. At every turn they gave assurance that they can take whatever it takes to win this war. They are not afraid of hard, continuous, precise, and dangerous work. They are walking up to it as their duty and part in the war. They are proud of it. . . . Officers of the trade-union movement, consecrated to preserve the freedom of humanity, can serve today the whole people of this country, as well as the loyal membership."

LABOR CONTRIBUTIONS TO THE WAR

American workers in industry and on construction projects have sacrificed their lives only in the relatively few places which have been bombed, such as Wake Island, Pearl Harbor, the Philippines, and certain parts of Alaska. Union seamen have, of course, performed outstanding and indispensable service to the war program, risking their lives daily to get cargoes through.

American workers have made voluntary contributions to the war program in many fields. It is estimated that union members have bought between 2 and 3 billion dollars' worth of war bonds, and the already high percentage of workers donating 10 percent or more of their wages to the purchase of bonds is climbing toward 100. In response to union-sponsored campaigns, thousands of workers have gone to Red Cross centers to donate blood for men wounded on the battlefronts.

The leading labor organizations have set up special committees to collect funds for war relief, with special attention to relief among workers in Allied nations whose homes have been shattered by war. In New York City one such joint committee collected 4 million dollars in donations, which is now being distributed among the Red Cross, a New York relief fund, the British, Chinese, and Russian war relief

organizations, a recreation service for soldiers and sailors, and to the people of occupied Europe.

Labor groups have often given overtime work to finish important war jobs, without pay. Planes, tanks, and ships have been purchased by labor groups and presented to the government. American labor has proved in every possible way that it is behind its government in the prosecution of this war.

After Pearl Harbor, as Secretary of Labor Frances Perkins observed, "Labor voluntarily set aside for the duration its basic right to strike against producers of war equipment and entrusted the settlement of its legitimate disputes to the process of mediation and arbitration. It is notable that this vital step was not taken by government decree."

WORK STOPPAGES

The promise made to President Roosevelt by leaders of both CIO and AFL that there would be no strikes by member unions for the duration has been kept by these organizations. However, there have been strikes by local and independent groups, usually short, and involving small numbers of men, but occasionally, as in the case of the coal strikes, of national importance. The AFL and CIO have strenuously opposed these strikes and have assisted government agencies in settling them. Most threatened strike situations have been handled by the Conciliation Service; some by the National Labor Relations Board; and others by the National War Labor Board. (See pages 17; 22; 88.)

In 1942, the Conciliation Service certified 1,076 of its 12,677 disputes for arbitration by NWLB. During this period the time lost as a result of strikes was only 6/100 of one percent of the total time worked. Chairman W. H. Davis of NWLB says: "We are getting more and more organized cooperation from labor and management. I see signs of this on every side."

WOMEN WAR WORKERS

American women are taking an increasingly important part in U. S. war production. Recent pronouncements by government, labor, and management interests support equal pay for equal work, a principle which has met with increasing general favor in the United States in recent years. The National War Labor Board takes this stand; so do both CIO and AFL; so does the National Association of Manufacturers, expressing the management point of view. The number of women who are members of trade unions has increased tremendously. In 1939 there were about 800,000 women in trade unions; by the end of 1942 there were approximately 3 million. Many unions have provided nursery facilities in big war-production areas for women war workers with children. (See pages 125; 149.)

NEGROES IN WAR INDUSTRY

On June 25, 1941, the President issued an executive order forbidding any discrimination in employment in war industries and creating the Committee on Fair Employment Practice, which was directed to hear cases of discrimination and take steps to eliminate it. The influence of the committee's work is making itself generally felt in war-production centers. Whole industries, in fact, are in process of changing to hiring policies which take no account of race. For example, the aircraft industry, which at one time had practically no Negro workers, now employs thousands and is taking on more every day. Shipbuilding also is showing increases in numbers of Negroes employed.

LABOR-MANAGEMENT COMMITTEES

For many years labor organizations had been advocating the formation of committees representing both labor and management for the improvement of plant production and efficiency, and various plans had been tried out, with some success. Soon after America entered the war, Donald M. Nelson, chairman of the War Production Board, announced a plan for setting up voluntary labor-management committees in war-production plants. By 1943, committees of this kind were functioning in 3,060 factories and mines. Practical suggestions for improving plant efficiency, speeding output, reducing waste, and solving workers' transportation problems have originated with these committees.

Suggestions are made at regular meetings of the committees and also independently by employees for consideration by the committees. WPB offers three types of awards for valuable suggestions. The committees have proved enormously successful both in improving production methods and in raising employee morale by improving working conditions, transportation facilities, and housing problems in industrial areas.

FULL-TIME PLANT OPERATION

At least half the war plants in the United States are now working full time—160 to 168 hours per week. (In many plants, 160 hours is considered "full time" although there are actually 168 hours in a week, because machinery must be serviced between shifts while it is not in operation.) The number of full-time plants is increasing daily. Material shortages which have prevented full-time operation are rapidly being remedied. In some areas a shortage of trained manpower has prevented the recruiting of three full shifts, but training programs and other efforts of the War Manpower Commission are helping to solve this problem.

A number of schemes to maintain 24-hour daily operation are in effect in the United States. Two of the more common plans utilize four crews, each working about 42 hours per week. In one of these plans, which has been widely adopted, a man works seven days straight on the day shift, has a day off, works seven days on the afternoon shift, has two days off, then works seven days on the night shift, after which he usually has three or four days off before beginning the cycle anew.

Some plants keep on the job 168 hours a week with three crews, yet give a few whole days off by working each crew 12 hours a day two days a week, and eight hours a day the four others. This gives each man one day off a week. This arrangement, with variations, is fairly common in the machine-tool industry, in which there is a shortage of the highly trained labor essential to successful operation.

FARM LABOR

Union organization barely touches farm workers, either family members or hired help. The Farmers Union, which represents low-income farmers, is influential but numerically rather small. Many of the hired workers are harvest hands who follow the crops, beginning in the early summer in the South and slowly working northward where crops ripen later in the year. Some areas of the South have a second crop in the fall, and some migrant workers usually return there for these late crops.

Generally speaking, farm wages in the United States have nearly always been lower than factory wages. At least part of the difference has been made up on farms by provision of food and shelter free or at very low cost to the workers. However, manufacturing wages have risen considerably since America entered the war, and the demand for labor in new war plants has been urgent. Naturally, many farm workers have been drawn into factory work. Others have been taken into the Army. The result has been a shortage of farm labor. Accordingly, farm wages have risen somewhat, and farm workers are working harder and longer than before, at better pay.

The lot of the migrant worker in the United States has not always been a happy one, and during the early years of the depression it was difficult indeed. This was partly because drought in parts of the Midwest and Southwest forced many settled farm operators to become migrant workers. War conditions have helped to solve this problem, which had already been strenuously dealt with by several government agencies. Now there is plenty of work at reasonable wages, and farmers and farm laborers are better off than they have been in years. (See also pages 67; 125.)

UNION ORGANIZATION DRIVES

War has stepped up organization, and has seen the consolidation of previous union gains in many fields. AFL, generally speaking, has continued organization work along its regular lines, with special attention to the Southeast. During the period of widespread rapid construction work which began in 1940, camps, factories, housing, dams, etc., were all being built, and since most construction unions belong to AFL, its representatives were on the spot at most of the big jobs clear across the country. The result was a general increase in the membership of the Carpenters and Joiners and other construction unions.

CIO, like AFL, continued organizational work in the South. Here union organization had lagged behind the Northeast and the Midwest for some years. But war has brought many new industries to the South and increased the volume of production in many old ones. CIO organizers have been working on the Southern drive since early 1940, with some success, and also in the petroleum industry in Texas, Louisiana, Pennsylvania, and California.

Particularly large wartime gains have been registered in the fields of shipbuilding and aircraft production. The leading union of aircraft and munitions workers, the United Automobile, Aircraft, and Agricultural Implement Workers (CIO), rose from 600,000 to little short of one million in the year 1942-43. Both AFL and CIO shipbuilding unions have doubled or trebled their membership in the same period.

* * *

HOUSING

Housing as an integrated program in the United States dates back to 1933. A 1932 survey of housing conditions in America had revealed the need for good low-cost housing for families with small incomes and the need to revive private financing and construction of new homes. Out of this survey came a coordinated housing program which has produced nearly a half-million housing units financed by the government from 1933 to 1943.

The first step, which followed the establishment of the Public Works Administration in 1933, was a limited public housing program, initiated as a temporary measure for the relief of unemployment resulting from the depression which started in 1929. The U. S. Housing Act of 1937 inaugurated a broader program whose object was decent housing for low-income groups. The method used was federal assistance to local communities. Under the U. S. Housing Authority (USHA) the federal government loaned money to local housing authorities and assisted them in building projects for their own communities. USHA built no houses.

Under the federal program from 1933 to 1941, when building except for war needs ceased, 132,000 low-rent housing units were built for families in the lowest income group, most of whom formerly occupied substandard dwellings in slum areas. The Farm Security Administration (FSA) built or repaired 37,000 houses for rural families in the lowest income group. More than 11,000 former tenant farmers, share-croppers, and farm laborers eligible for farm-purchase loans from the FSA, under the Bankhead-Jones Farm Tenant Act of 1937, now live in new homes of their own on farms they are purchasing. Another 13,000 farm families have been rehoused on homestead projects which are resettlement communities for full-time or part-time farming. In addition, FSA built permanent and mobile labor camps for migratory agricultural workers capable of housing 50,000 families during a year.

But the largest group affected by the national housing program is the 833,000 middle-income families who built or purchased houses under the Federal Housing Administration (FHA) insurance plan. By insuring long-term home mortgages, FHA modernized the entire system of home financing and revived activity of private enterprise in the field of small home building.

When war came, slum clearance, public housing projects, and domestic building by private enterprise ceased and all effort was directed toward providing war housing. Methods and procedures for constructing large-scale projects had been established; the machinery for housing was functioning, and had only to be geared to war purposes.

HOUSING FOR WAR

On February 24, 1942, the President created the National Housing Agency, which took over the tasks formerly divided among 16 agencies.

The National Housing Agency has sole responsibility for the nation's war housing. It determines the extent of housing shortages in critical war-production areas in consultation with the War Manpower Commission and the War Production Board. It decides the amount and type of war housing required, and ascertains whether private builders are able to supply it. If not, the National Housing Agency assigns projects to public agencies.

It has had the responsibility of providing more than three million accommodations for essential war workers through new construction and through intensified use of existing buildings. Almost 90 percent of the new units were complete or under construction by June 30, 1943, and the program is scheduled for completion by the end of the year. In May 1943, it planned 940,000 additional accommodations for the 1,100,000 workers who would migrate to war jobs during the fiscal year beginning July 1, 1943. About one-third of these accommodations will be supplied through new dwelling units and the remainder in existing structures.

Against a background of wartime uncertainties and restrictions, a job of this magnitude could be accomplished only by unification of all forces in housing. All available private resources have been mobilized for the war housing job—private builders, lending institutions, local housing authorities, state housing organizations, the building-supply industry, and labor unions. The rapid progress in accomplishing the vast program is due to their cooperation and is a proof of the ability of democracy to build speedily, adequately, and flexibly even under the limitations of war.

There are three units within the National Housing Agency:

FEDERAL HOUSING ADMINISTRATION

This unit insures mortgages for private builders, enabling them to participate in the war housing program. Its repair program enables property owners to convert existing structures to war use.

FEDERAL HOME LOAN BANK ADMINISTRATION

Operating through its member banks, home-financing institutions, and savings and loan associations, this unit encourages the participation of financial institutions in war housing activities by supplying loans and credit to them.

FEDERAL PUBLIC HOUSING AUTHORITY

This is the only constituent agency of the National Housing Agency which uses federal funds to build war housing. FPHA is authorized to provide such housing only when the need cannot be met by private builders. It builds war public housing for workers engaged in essential war industries, for certain military and naval personnel, and for certain federal employees whose duties are vital to the war program. It is responsible for the great majority of all war housing constructed with public funds with the exception of Army and Navy housing projects on military sites. It is also responsible for low-rent projects developed under USHA and for non-farm projects developed by the Farm Security Administration. FPHA has ten regional offices serving as clearinghouses for their respective areas.

Six Congressional acts and their amendments provide the legal authorizations and appropriations under which FPHA functions. The most important of these is the Lanham Act, primary source of war housing legislation.

FIVE GENERAL TYPES OF WAR HOUSING

There are five general types of public war housing: family units, dormitories, war apartments, trailers, and demountable houses; all but the first are temporary.

Family Units

These may be temporary or permanent, and consist of apartments, or detached or row houses, ranging from two to five rooms. Community, recreation, and health facilities are provided.

Dormitories

Dormitories provide rooms for individual workers in war production areas where the temporary character of the industry served makes construction of permanent houses inadvisable. Usually single and double rooms are arranged in wings having central sanitary units. Community facilities for dormitories include a cafeteria, trading post, infirmary, and recreational equipment.

War Apartments

These consist of one-room apartments equipped with private baths and light housekeeping facilities. Compactly arranged and furnished, they meet needs of couples employed in war industries. Their community facilities are the same as those provided for the dormitories.

Trailers

Trailers are a stopgap solution for the most urgent housing needs. They may be used as long as a war housing need exists, or only until more substantial structures can be erected. Trailers are equipped with electricity and with heating and cooking facilities. Special trailer units provide laundry and lavatory facilities. The trailers are produced by private manufacturers and are of two types: the standard trailer, which accommodates up to four occupants, and the expansible trailer, which can be opened up, by extending winglike additions, to accommodate more than four.

After necessary camp-site utilities are installed—street lights and sanitary facilities included—trailers are brought in and arranged according to plan. Then their undercarriages and wheels are removed.

Demountable Houses

Like trailers, these constitute mobile shelters of great wartime usefulness and high salvage value. They are easily taken apart, transported, and reassembled wherever needed. Although they consist of prefabricated sections, they should not be confused with the more permanent type of prefabricated houses, which are not necessarily demountable.

SLUM CLEARANCE AND LOW-RENT PUBLIC HOUSING

Between 1933 and December 1941, when the United States entered the war, 560 public housing projects were completed and occupied by 132,000 low-income families. For each new low-rent home built, a substandard dwelling was eliminated. The program was planned and administered through local housing authorities, of which there are 622 in 39 states.

A score of large public housing projects in East coast metropolitan areas are towns within cities. The project called Red Hook, in Brooklyn, New York, has a population of about 10,000. It includes a nursery school and health and recreation facilities. Some public housing projects operate cooperative stores, health associations, and recreation programs which may include a community motion-picture theater, and a newspaper or magazine published by the tenants.

The average low-rental housing project is much smaller than Red Hook. Most public projects have about 350 dwelling units. One- or two-story row houses or group dwellings are usual, with central heating facilities and laundries serving groups of self-contained family units. The houses are arranged around central play areas and gardens, where children are safe from motor cars. The monotonous gridiron pattern of rectangular blocks is avoided wherever practicable. Site planning eliminates traffic hazards and noise by grouping houses within thoroughfares which skirt the communities. Underpasses for pedestrians are provided where through highways bisect communities.

GREENBELT TOWNS

The federal government has constructed and now operates three "greenbelt" towns, experiments in the resettlement of families evacuated from slums or substandard dwellings to low-rental public housing in planned communities close to large cities. These are Greenbelt, Maryland; Greendale, Ohio; and Greenhills, Wisconsin. Tenants accepted must be within prescribed income groups. The projects are administered by the Federal Public Housing Authority, although they were built by the FSA as part of its rural resettlement program.

Greenbelt, near Washington, D. C., is typical of the others. It is an incorporated town with a paid manager and an elected council of five which selects a mayor from its number to serve two years. The town operates its own fire control, police, and sanitary facilities. The county provides and operates schools, as well as certain health facilities. The state of Maryland maintains the highways.

Greenbelt is made up of multiple dwellings, duplex and single houses surrounded by woodlands and fields. The dwellings are set in a wide crescent around an artificial lake. In the curve of the crescent are community facilities including schools and stores. The motion-picture theater, bank, stores, and health association are operated as consumer cooperatives. Recreational facilities include swimming, sailing, and rowing, and there are picnic areas, bicycle paths, and camp sites. Outsiders patronize Greenbelt's stores, use its recreational facilities, and share to some extent in its social life. Thus the town's influence extends beyond its borders, supplying leadership and facilities for many interesting and useful projects.

Greenbelt's cooperative health association and hospital provide prenatal care for mothers and general health care at a low rate. Physicians are retained by the hospital on a salary, and members of the health association may visit the health center for free examinations, and receive house visits from physicians at a lower cost than in other communities.

Average Greenbelt rentals run from $31-$35 a month; substantially less than comparable accommodations in other Washington suburbs.

FEDERAL HOUSING ADMINISTRATION

Most of America's 30 million families live in single family small homes. The trend of national small-home design is toward more compact houses which can be operated economically and efficiently without paid assistance. Housekeeping in the up-to-date American home is simplified by electricity, automatically controlled heat, and step-saving floor plans.

The one-story house with four or five rooms is the type most often purchased with loan funds insured by FHA. Such a house costs about $5,000. FHA records reveal that more than half of America's houses are of wood with shingle, siding, or clapboard exterior walls. A favorite type is the Cape Cod cottage with attached garage.

FHA, which has insured mortgage loans enabling the purchase of 833,000 houses by families who are mostly in the middle-income group, does not lend money and does not build houses. It is an insurance agency which protects banks and other qualified lending institutions against loss on loans made for construction or purchase of residential structures, or repairs and improvements of houses and other types of building. Its object, as defined by the National Housing Act of 1934, is "to encourage improvement in housing standards and conditions, to create a sound mortgage market, and to provide a system of mutual mortgage insurance."

When Congress formulated these objectives, new construction of homes had fallen to levels far below the nation's needs. The mortgage system was subjected to severe strain during the depression, and the American people, seeing mortgages foreclosed when payments could not be met, began to question the wisdom of home ownership.

FHA has contributed to the restoration of confidence in home ownership and has helped to make home ownership possible within the financial means of a constantly broadening segment of the population.

It has helped to reduce mortgage interest rates to the lowest levels in history, and has popularized the long-term amortized mortgage in place of the previous short-term first, second, and third mortgage system. It has been instrumental in re-establishing the residential lending field as an important outlet for private capital. Through its program, more than five billion dollars in private capital have been invested on a sound basis. It stimulated home construction, and helped to reactivate the building industry. As a result, the building industry was ready, when war came, to swing into construction of low-cost small homes needed in vital war production areas.

In addition to its home construction and home purchase objectives, FHA has made repair and improvement loans possible for approximately 4,300,000 farm and business property owners. These loans have aggregated more than $1,700,000,000.

RURAL HOUSING

In 1937 the Bankhead-Jones Farm Tenant Act moved to correct conditions encouraging the growth of substandard rural housing. Farm Security Administration loans, made under the act only to those who cannot obtain money elsewhere to buy farms, are for purchase of family-type farms and repair of old farm buildings, or for erection of new ones if necessary.

FSA has supplied designs and specifications for more than 11,000 such homes, built by local contractors under FSA supervision. By making use of precutting and prefabrication they built modest but substantial farmhouses at low cost. Many private builders have adopted their plans and methods.

In administering the rehabilitation program of the U. S. Department of Agriculture, FSA manages more than 150 homestead projects, through which 15,000 farm families have been provided with new homes. (See page 67.)

FSA has also designed camps for migrant labor where families can live as they follow the crops, (see page 67), and it assumed the task of providing permanent and temporary housing for many of the 14,500 farm families displaced by the purchase or lease of millions of acres of land for defense purposes. Before the establishment of the National Housing Agency in 1942, it was also assigned the task of building permanent and temporary housing for industrial workers in crowded defense areas, and of providing trailers, dormitories, and portable houses as stopgap shelter for defense workers.

PREFABRICATED HOUSING

The development of prefabricated housing has gained enormous impetus through war building programs.

The prefabrication method utilizes mass production and power machinery for the rapid construction of fabricated sections which are then assembled as complete houses at the site, much as automobiles are put together on industrial assembly lines.

Wall, roof, and floor sections may be fabricated on the site or in the factory, depending largely on the size of the housing project, the respective locations of site and factory, climatic conditions, and the availability of local labor. Factory fabrication, by permitting site development to proceed simultaneously with preparation of prefabricated sections of the houses, speeds up the total operation; site fabrication

eliminates the need of transporting sections to the site. Both methods produce results speedily and reduce costs by mass production and elimination of much hand labor.

Prefabricated houses have been erected in speed tests in less than an hour. A 5,000-unit housing project was erected in 60 days at Norfolk, Virginia, using prefabricated parts which were assembled on the site at the rate of more than 80 houses a day.

One institution built a group of prefabricated plywood houses in New Jersey. These houses, which have been lived in for several years, are a long-term experiment on which the families living in the homes keep records. Their findings influence new designs of the institution which constructed the houses.

The same design was selected by one of the largest East coast airplane factories for more than a thousand prefabricated houses for war workers in an area where summers are hot and winters are severe. A single thickness of insulating outer-wall material keeps the houses cool in summer and warm in winter. Small heating units, sunk under the floor and automatically controlled from the living room, provide adequate heat, even in the coldest weather.

It is estimated that 100,000 prefabricated houses exclusive of war housing are being lived in today. Prefabricated houses were being sold by a number of private companies before the outbreak of the war, and prefabrication was used extensively in the inexpensive housing devised by FSA to rehouse lowest-income farm families. Most light and medium construction since the defense program got under way has involved prefabrication in one of its numerous forms. Sixty thousand factory-made wooden houses have been produced in the past two years for war housing, and almost as many site-fabricated houses in panel form using jigs, templates, and other labor-saving devices.

Research institutions, some of them maintained by private industry, are experimenting with prefabricated houses, and have overcome many serious technical obstacles. They have produced insulated, weather-resistant, flame-resistant outer walls and roofing materials which are strong, light, and easily handled.

* * *

TRANSPORTATION

The battle of transportation in the continental United States —a crisis at the beginning of the war—is now being won. Railroad transportation is vastly better than during the last war, when serious freight congestion was widespread. The railroads are moving troops, and they are moving civilians. Busses, streetcars, passenger cars, and even box cars are getting war workers to plants and homes. Refrigerator cars, which used to return empty to the West and South, are carrying back freight. Tank cars are carrying a large part of the oil that, in peace, would have gone by water. "Big Inch," the new 1,400-mile pipeline from Texas to New Jersey, is delivering 300,000 barrels of oil a day to the Eastern states. Barges, which used to lie idle, are carrying war freight on rivers and canals. Highway trucks, which used to return empty, are moving pay loads in both directions. Airplanes are still taking passengers, on priority.

LAND TRANSPORTATION

RAILROADS

When America entered the war in 1917, there were only 4,500,000 passenger automobiles in the country, and almost no busses. People rode in trains as a matter of course. By 1941, however, when the U. S. entered the present conflict, the picture was different. Train travel had declined severely, and with the number of automobiles risen to 29,500,000 and the number of busses to 160,000, America was making enthusiastic use of the country's 3 million miles of public roads. Then, after Pearl Harbor, the picture changed again. The rubber and gasoline shortage, and the training and growth of the armed forces put Americans back on trains in a hurry.

The 54 billion passenger-miles traveled by Americans on trains in 1942 were an all-time peak. This great travel crush took place on railroads equipped with two-thirds as many passenger cars and half as many locomotives as twenty years before. The heaviest crush took place toward the end of the year: in October 1942, railroad travel was up 130 percent over October 1941; in November, 143 percent over the previous November.

In the fall of 1943, about 2 million troops a month were traveling on America's trains in official troop movements—exclusive of furlough travel. About half the total supply of Pullman cars and one-third of all day coaches (about 3,000) were in troop use.

Railroads are also accomplishing the transportation of vastly increased numbers of civilian travelers. A "Don't Travel" campaign is in progress to discourage unnecessary use of already overtaxed facilities. In addition to the armed forces, there is one other group whose movements are given preference over ordinary passenger travel. These are the agricultural workers who were moved about the countryside during 1943 to help with harvests. Workers in the Mississippi Valley, for example, after the short-staple cotton picking season was over, moved southwest to pick long-staple cotton; farm workers in the Appalachian hill section, after the crops were in, moved to New York, New Jersey, and Connecticut for the fruit and vegetable harvests. The Farm Security Administration of the Department of Agriculture arranges for the transportation of these people with the Association of American Railroads and pays for their travel and for their subsistence en route.

Railroad Freight

With intercoastal shipping through the Panama Canal almost non-existent except for military and naval movements, with coastwise shipping, especially along the Atlantic, likewise curtailed, and with ports handling huge quantities of Army and Lend-Lease exports, the railroads are performing, with few major congestions, a gigantic job of freight transportation. In 1942 they carried 638 billion ton-miles of freight, an increase of a third over 1941, the former peak year, and the figure cannot help but rise in 1943. As in the case of passenger equipment, railroad freight equipment is considerably down from the last war's figures; there were one-quarter fewer freight cars in existence in 1942 than in 1918. The construction of 20,000 freight cars and 386 locomotives was licensed by the War Production Board for the first eight months of 1943, and more are being built.

The congestion in freight handling that marked the last war has been avoided in this, for two principal reasons:

First, improved equipment and methods have enabled the railroads to speed up operations and to do more work with each unit. Second, the lessons of the last war have been heeded. In 1918 many cars were loaded which could not be unloaded for days or weeks after reaching their destinations because sufficient warehouse facilities and ship bottoms were not available. Today shipments destined for overseas move under a permit system which prevents the cars from backing up at the ports.

Exports from most ports, especially those on the Pacific coast, are many times what they were in 1941, and harbor, track, yard, storage, and labor facilities are strained. Clogging at ports is kept to a minimum by the operations of a Transportation Control Committee, made up of one representative each of the Army, Navy, British Ministry of War Transportation, War Shipping Administration, and Office of Defense Transportation.

Average freight-car loads are considerably heavier than before the war, especially in the case of less-than-carload freight, which has almost doubled from 5.3 tons in 1941 to a required 10 tons in 1943.

Railroad Statistics

(Class 1 steam railroads)

Number of major railroads	132
Miles of road	231,861
Miles of second and other main track (cross-overs, switching, etc.)	156,341
Average number of employees, 1942	1,271,077
New employees hired in 1942	131,152
Number of passengers carried in 1942	399,245,822
Average fare per passenger-mile (in cents) 1942	1.92
Average freight rate per ton-mile (in cents) 1942	93
Troop movements, Dec. 7, 1941-42 more than	11,000,000
Troop movements, first 9 months of war in 1917-18	1,916,417
Passenger cars (1942)	27,758
Serviceable cars	1,690,570
New locomotives added Oct. 1941-1942	783
New freight cars added Oct. 1941-1942	80,874
Percentage of total U. S. freight carried on railroads	61 percent

Electric Railways

Number of miles of track, 1942	18,200
Passengers carried on railway cars, 1942	9,768,000,000

HIGHWAY TRANSPORTATION

Getting workers to and from their jobs every day is the most serious wartime passenger transportation problem. Local transportation systems, especially in communities with war plants, are being heavily overtaxed. As compared with December 1938 (called the last "normal" year in the transit industry because it was the last year before defense work started), the Detroit Street Railways system, for example, showed a passenger increase December 1942 of 76.9 percent. The Baltimore transit line was up 90.8 percent and the Washington, D. C., transit line up 131 percent. These figures shrink, however, when placed beside those for medium-sized and smaller cities with war plants. Passenger transportation in Charleston, S. C., was up 622 percent; in Wilmington, N. C., 522 percent; and in San Diego, 336 percent. The list is endless.

In 1943, the War Production Board licensed the use of materials for 3,000 new busses. If this had been a normal year, 15,000 new busses would be replacing old ones and several thousand more would be added to the fleet.

The trolley is receiving new appreciation. Like elevated cars, it is long-lived, and it doesn't use rubber. Only 220 new trolleys were built for civilian use in 1943.

At present, many passenger cars are laid up in storage, and surveys at war plants show that anywhere from 15 to 50 percent of workers are using the crowded public transportation systems to get to their jobs. Government agencies are urging people to use their cars to get to work, but to use them efficiently in group-riding arrangements. Anyone who isn't using his car is urged to keep it in condition or to sell it.

Busses

Inter-city busses, which had already taken so much passenger traffic from the railroads before the war, are now crowded like all other public vehicles. In 1942 they carried 635,928,703 passengers, as contrasted with 376,853,000 in 1941—an increase of 80 percent—and they carried even more in 1943. Competing lines are now operating with pooled services and on staggered schedules.

Trucks

Various wartime causes—manpower shortages, local shortages of parts, lack of business, and lack of rubber—have put many thousands of America's 4,800,000 trucks out of operation, but the ton-mileage being hauled by trucks in inter-city service is 10 percent more than the last available figure for the entire fleet. A large cut in truck mileage from that traveled in 1941 has been made necessary in 1943 by the decreased amount of crude rubber available: even the recapping of a tire involves the use of crude rubber.

Automobiles

No passenger cars and few commercial vehicles are being built for the duration. But at the beginning of the present war, the U. S. was using about half the world's rubber, had one-third of the world's paved highways, and nearly four-fifths of its motor vehicles. There was one passenger car for every 4.6 persons in cities above 100,000 population. Today, with rationing of rubber and gasoline, Americans walk, ride in public carriers, or share their cars with neighbors whenever possible. Bicycles are widely used, though rationed. Gas rationing is in effect nationally, and there is a new national speed limit of 35 miles an hour.

ROADS IN THE UNITED STATES

Total mileage of non-urban roads	3,000,000
Earth roads	1,850,000
Surfaced roads	1,150,000

Highway construction is paid for by federal, state, and local agencies.

REGISTRATION OF PASSENGER CARS AND TRUCKS IN THE UNITED STATES

Year	*Passenger Cars*	*Trucks*	*Total*
1895	4	....	4
1904	54,590	700	55,290
1914	1,625,739	85,600	1,711,339
1918	5,621,617	525,000	6,146,617
1941	29,507,113	4,876,054	34,383,167
1942	27,400,000	4,600,000	32,000,000

ALASKA HIGHWAY

On March 9, 1942, American Army engineers began pushing the crushed rock Alaska Highway through the Canadian wilderness to Alaska. This new Alaska Highway, 24 feet wide and 1,671 miles long, was opened to truck traffic October 29, well ahead of schedule. Starting at a point east of the Rocky Mountains and 800 miles inland from the West coast, it continues to an Alaskan city where railroad facili-

ties are available. This rail line runs to the sea. The highway serves new airfields in operation en route.

INTER-AMERICAN HIGHWAY

The Alaska Highway will be part of the great Inter-American Highway stretching 16,000 miles through 18 countries in North, Central, and South America.

Work on the Inter-American Highway is progressing steadily. There is now an all-weather road to a point 150 miles south of Mexico City. The section from there to the Panama Canal will be rushed through at top speed. Out of the 7,198 miles of highway between the Panama border and Rio de Janeiro, 6,500 is clear thoroughfare.

The United States has loaned other countries $48,365,000 to construct the highway, and has appropriated 20 million dollars outright for this purpose.

Besides its obvious military value, the Inter-American Highway will fortify the Good Neighbor policy by increasing trade and commerce, developing new lands and natural resources, creating employment, and spurring tourist traffic.

PIPE LINES

Common carriers engaged in interstate transportation of oil or gas, by pipe line, or partly by pipe line and partly by rail or water, come under Interstate Commerce Commission jurisdiction.

Oil and Gas Transported in 1942:

Oil Transported (barrels) 1,763,811,695
Number of companies 69
Miles of oil line operated
Gathering lines 42,318
Trunk lines 64,167
Gas Transported
Miles of main 293,283
Cubic feet delivered to consumers 2,212,369,300,000

Principal New Oil Pipe Lines in the United States:

Plantation Pipe Line: between Louisiana and North Carolina, 788 miles long; with branches, 1,261 miles long. Built in eight months; main branch capable of carrying 90,000 barrels of crude oil daily.

Southeastern Pipe Line: between Florida and Tennessee, 462 miles long; capable of carrying 28,000 barrels daily.

"Little Big Inch" Pipe Line: between Texas and Illinois, 550 miles long, 20-inch crude-oil line; capable of carrying 225,000 barrels daily. Will be extended soon to refining centers in the East—an additional distance of 857 miles.

Helena Pipe Line: to ship oil from Gulf Coast refineries to Mississippi River, 150 miles long; capable of carrying 50,000 barrels daily.

"Big Inch" Pipe Line: between Texas and New Jersey, 24-inch crude-oil line, with branch to Staten Island. Capable of carrying 300,000 barrels of crude oil daily, and is the longest and largest pipe line in the world (1,400 miles).

MEMORABLE DATES, U. S. LAND TRANSPORTATION

1760—Stage lines open in America.
1791—Washington makes 1,889-mile trip by carriage through colonies.
1829—First locomotive in the United States, the Stourbridge Lion, built in England, makes run at Honesdale, Pennsylvania.
1830—Baltimore and Ohio Railroad Company opens first regular rail line in the United States, near Baltimore, Maryland, but operates initially with horses. Best Friend, first practical American-built locomotive, run by South Carolina Railroad Company.
1831—DeWitt Clinton locomotive attains speed of 40 miles an hour on Mohawk and Hudson Railroad between Albany and Schenectady, New York.
1832—First city horse-car line in world, started in New York City, New York.
1836—First sleeping car, a four-bunk affair, tried out between Harrisburg and Chambersburg, Pennsylvania.
1837—New York City (N. Y.) and Philadelphia (Pa.) connected by rail. Lines also operating between Philadelphia and Baltimore (Md.), Baltimore and Washington (D. C.), Baltimore and Harpers Ferry (W. Va.), Charleston and Hamburg (S. C.), Albany and Schenectady (N. Y.), Boston (Mass.) and Providence (R. I.).
1848—Mexican War and subsequent discovery of gold in California cause enormous output of covered wagons; arouse great interest in railroads; new agitation for Panama railroad or canal.
1852—Rail connection established between New York City and Chicago.
1864—George Pullman built first sleeping car for use on railroads. (The sleeping car of 1836 was a remodeled day-coach whereas Pullman's car of 1864 was first one built as such.)
1869—First transcontinental railroad in the United States completed at Promontory Point, Utah.
—The first railway air brake invented by George Westinghouse.
1870—Bicycle fad sweeps world.
1873—First railroad automatic car coupler invented by E. H. Janney.
1875—First refrigerated railway car developed by G. F. Swift.
1896—Circuses feature automobiles.
1898—Alexander Winton, of Cleveland, on April 1, makes first automobile sale in the United States.
1907—Ford makes first of his 15 million Model T cars.
1927—Opening of Lincoln Highway which crosses the country between New York and San Francisco.
1929—World registration of passenger cars, trucks, and busses reaches 35 million, almost four-fifths of them in the United States.

WATER TRANSPORTATION

The war has brought about greatly increased activity on America's inland waterways, especially the Great Lakes, over which passed during the 1942 season the record-breaking total of 92 million tons of iron ore. Moving from the Minnesota iron ranges to the Lake Erie ports of Erie, Toledo, Huron, Cleveland, Ashtabula, and Conneaut, whence it is transshipped to steel mills, this ore is the main supply of the arsenal of democracy. The season was an unusually long one, lasting from the last week in March to December 9. Ore was given priority over all other shipments; lake movements of grain and coal were restricted in its favor. Manpower and weather conditions on the lakes will largely determine the ore haul of 1943.

Great Lakes freighters, especially designed for bulk cargoes, are the envy of the maritime world. The largest vessels are over 600 feet long, can carry a cargo of 572,000 bushels of wheat, 760,000 bushels of oats, or 16,282 tons of coal or iron ore. Wheat pours through elevator spouts—2,600 bushels a minute. Iron ore, 100 tons of it a minute, goes into ships' holds.

Doing their part to fill the increased needs of war, the country's rivers and barge canals are in most instances being

used for transportation pretty much up to the capacity of present equipment. Oil is the number one war cargo, with coal next. The chief coal movement is down the Allegheny and Monongahela rivers from the mines to the Pittsburgh area. The longest coal haul is from St. Louis to St. Paul and Minneapolis; a total of 600,000 tons was moved along this route last year. Number three cargo is sulphur from Texas and Louisiana, moving up to Chicago and Pittsburgh. Number four is scrap iron, collected all over the country and moving to the steel area.

The busiest canal in the country at present is the Gulf Intra-Coastal Canal between Corpus Christi, Texas, and Carrabelle, Florida. Petroleum, sulphur, and steel are the chief products carried. The Atlantic Intra-Coastal Waterway between Jacksonville, Florida, and Trenton, New Jersey, is used for the shipment of molasses, oil, scrap iron, canned goods, steel, and coal. Another busy canal is the New York Barge Canal, extending from Buffalo on Lake Erie to a point near Albany on the Hudson, continuing thence by river to New York. It carries scrap iron, bauxite, sulphur, and oil. The most important barge movement in the Far West probably takes place on the Columbia River. From Portland, Oregon, where tankers from California dock, barges carry gasoline up the river in eastern Oregon and Washington, bring back important quantities of grain.

MERCHANT MARINE

At the start of the nineteenth century, 93 percent of U. S. foreign trade was carried in U. S. ships. In the 1850's, American-built merchantmen were the world's fastest. But industrial expansion and westward migration turned American attention inland. By 1870, U. S. merchantmen were carrying only 35 percent of U. S. cargoes, and by 1914 only ten percent. At the outbreak of the last war the U. S. had only 116 ships in foreign trade, and only 19 of these serving transocean routes.

America built about 2,300 ships in 1917-22, and a sizable portion of this merchant marine remained long after the armistice. Since the average competitive life of a ship is 20 years, America's seagoing merchant marine was 91.8 percent obsolescent by 1938, with 30 percent already 20 years old or more. The American merchant fleet ranked fourth in tonnage, fifth in speed, and sixth in age among the six leading maritime nations.

At the beginning of 1941, the United States had 1,150 ocean-going vessels, totaling 7 million gross tons. In that year American shipyards delivered 103 more ships totaling 1,160,943 deadweight tons, and in 1942 they delivered 746 more ships totaling 8,089,732 tons. Shipbuilding in the United States passed the two-a-day mark in June 1942, and reached the four-a-day mark in December 1942. A total of 19 million deadweight tons of new ships will be added to America's merchant marine in 1943, according to present schedules.

In 1943, America's merchant marine must keep troops supplied wherever they may be. It must deliver lend-lease goods and import strategic materials for U. S. industry. It must carry goods to and from every Latin American nation, to fulfill Good Neighbor commitments.

WAR SHIPPING ADMINISTRATION

The War Shipping Administration sees to it that U. S. shipping is used to best advantage. It controls the purchase, charter, requisition, operation, maintenance, insurance, and use of all ocean vessels under U. S. control except the vessels of the Army, Navy, and Coast Guard, and vessels engaged in coastwise, intercoastal, and inland transportation under Office of Defense Transportation control.

Rear Admiral Emory Scott Land is War Shipping Administrator, as well as chairman of the U. S. Maritime Commission and U. S. representative on the Combined Shipping Adjustment Board.

In September 1943, Admiral Land controlled the cargoes and destinations of 2,500 vessels. He shared with the British jurisdiction of 450 ships of Allied registry, while in addition the British operated some 3,000 ships in the gigantic joint effort of the United Nations to move the tools of war to the fighting fronts. These ships must be routed so as to insure full loads of the most exigent materials, without loss of time in transit or in port.

Vast distances are involved in today's warfare, so WSA has eliminated conventional out-and-back runs in favor of far-ranging triangular and quadrangular voyages, lasting from four to six months.

WSA has requisitioned possession and use of all ocean-going tankers and dry-cargo vessels, thus directing, through one authority, their routes and cargoes.

Coastal shipping is largely confined to movement of coal from Norfolk, Virginia, to New England ports.

MEMORABLE DATES, U. S. WATER TRANSPORTATION

1000—Vikings reach North America in open boats.
1492—Columbus discovers West Indies.
1607—First American ship, the Virginia, built in Maine.
1807—Fulton's steamboat, Clermont, makes successful trial trip, New York to Albany.
1808—Phoenix, first steamship to make ocean voyage, Philadelphia to New York.
1819—Savannah, first steamship to cross Atlantic, arrives at Liverpool in 26 days.
1825—Erie Canal opens.
1845—Clipper ships attain height of popularity.
1850—Iron substituted for wood in hulls of ships.
1855—Screw propellers substituted for paddles.
1870—Steel hulls and compound engines introduced.
1914—Panama Canal opened.

AIR TRANSPORTATION

U. S. air transport began when the Army started to carry mail in the spring of 1918, the service being taken over by the Post Office Department later that year.

February 1921 saw the beginning of commercial air transport in the U. S., with planes flying coast-to-coast.

Today every established U. S. air route is equipped for night and day flying. Total lighted airway mileage is 32,000, with more than 2,200 airway beacons.

In 1930, U. S. airlines carried a few thousand passengers. In 1939, over two million people used America's air services. On March 26, 1940, United States airlines completed their first full year of travel, totaling 805 million passenger-miles, without a passenger fatality.

Of the 434 planes operated commercially within and beyond the continental limits of the U. S. by U. S. airlines before Pearl Harbor, almost half have been taken over by the armed services, which operate them as part of a vast fleet of planes carrying material and personnel both at home and abroad.

INTERCONTINENTAL AIRLINES

The history of America's intercontinental airlines is largely the history of Pan-American Airways; although a newcomer, American Export Airlines, today operates on several continents.

Pan-American was founded in 1928, to operate a 251-mile

route between Florida and Cuba. It carried 9,500 passengers. By 1938, Pan-American's routes had crisscrossed the Caribbean, circled South America, reached across the Pacific and the Atlantic. That year it carried 225,000 passengers. In the past few years its Clipper planes have made over 500 crossings of the Pacific and over 2,000 of the Atlantic. Since this war began, Pan-American planes have maintained schedules between America and Europe.

Transoceanic flying boats at present have a gross weight of slightly more than 40 tons, and carry a pay load of about 4,000 pounds for three or four thousand miles, depending on head winds and fuel reserve needed.

CARGO PLANES IN WAR SERVICE

A new chapter in wartime transport is now being written by giant cargo planes flying between the United States and Africa, Europe, and Asia. Planes, materials, and personnel that would be eight weeks on the water now reach the Middle East in as many days.

The U. S. Air Transport Command lend-leases these planes to commercial operators. More than 300 such planes were in service at the beginning of 1943. The Air Transport Command has assigned wartime routes to ten major U. S. airlines.

AIR TRANSPORT FERRYING COMMAND

The Ferrying Command was set up June 5, 1941, to ship planes from American factories to the fighting fronts of the globe, and to train American pilots in long-range flight of big craft. Today planes are being flown regularly from factories to distant destinations.

THE WASPS

The Women's Air Force Service Pilots includes members of the Women's Auxiliary Ferrying Squadron (who fly planes within the United States, ferrying them from factories to Army fields and training points), members of the training division (WAFTD), and those women assigned to other flying services within the Army Air Forces. These units were formerly separate organizations. The WASPS retain civilian standing.

MEMORABLE DATES, U. S. AIR TRANSPORTATION

1903—Orville and Wilbur Wright of Dayton, Ohio, make first successful heavier-than-air flight in history at Kitty Hawk, North Carolina.

1910—Glenn H. Curtiss flies from Albany to New York in a small land biplane.

1917—The United States enters the war against Germany with 55 Army planes, none in good condition.

1919—Three U. S. Navy flying boats make initial Atlantic crossing, Newfoundland to Portugal, via the Azores, with two stops. On June 14, Captain John Alcock of Great Britain and Lieutenant Arthur Brown of United States make first non-stop Atlantic flight, Newfoundland to Ireland, in 16 hours in a Vickers-Vimy land biplane.

1924—Two U. S. Army planes fly around world.

1926—Commander Richard E. Byrd, U. S. Navy, flies over North Pole.

1927—Charles A. Lindbergh flies from New York to Paris, non-stop, in 33 hours, 30 minutes.

1931—World is encircled in 8 days, 15 hours, 51 minutes by Charles A. Gatty and Wiley G. Post.

1932—Amelia Earhart first woman to make transatlantic flight. James Doolittle sets land-plane speed record of 296 miles an hour.

1938—Howard Hughes flies around the world in 3 days, 19 hours.

1941—In fiscal year ended June 1941, U. S. airlines carried 3,423,454 passengers—a new high.

1941—United States enters present war in December with 9,574 Army and Navy planes.

1942-43—U. S. Army Air Forces planes numbered 73,132 at the end of June 1943. For the fiscal year 1943-44 it is expected that 115,000 planes will be added. On August 1, 1943, over two million men were serving in the Air Forces.

OFFICE OF DEFENSE TRANSPORTATION

Acting to make the best use of various domestic transportation facilities and services in the war, President Roosevelt on December 18, 1941, created the Office of Defense Transportation, headed by Joseph B. Eastman, former chairman of the Interstate Commerce Commission.

ODT deals with transport by highway, rail, air, pipe line, and inland waterways; also with coastwise and intercoastal shipping.

Charged with preventing traffic congestion and assuring orderly and prompt movement of men, materials, and supplies to the points where they are needed, this agency is part of the Office for Emergency Management, but Director Eastman reports directly to the President.

Other government agencies involved in wartime transportation are the War Shipping Administration, U. S. Maritime Commission, Combined Shipping Adjustment Board (United States and Great Britain), Department of Commerce (inland waterways), Interstate Commerce Commission, Petroleum Administration for War (petroleum and solid fuels), Office of Price Administration (gasoline rationing), War Production Board (priorities and preferences), Public Roads Administration, and the Reconstruction Finance Corporation (loans for the development of transportation). See various listings in *Government*.

* * *

COMMUNICATIONS

The intricate network of U. S. commercial communications—postal, telephone, telegraph, ocean cable, and radio—before the war, required the services of more than three-quarters of a million people to maintain and operate. Annually it handled some 29 billion pieces of mail, 35 billion telephone calls, 215 million telegrams, 11 million cablegrams, 9 million radiograms, and 150,000 radiotelephone calls. In 1942 it handled 40 billion telephone calls, 218 million telegrams, 8 million cablegrams, 5 million radiograms, and 323,000 domestic and foreign radiotelephone calls. Since the war, its modern equipment and skilled personnel have been completely at the disposal of the government for whatever uses war needs may dictate. In addition, they are supplemented by specialized communication systems established by the U. S. armed forces.

POSTAL SERVICE

The U. S. postal service is operated by the Post Office Department, whose head—the Postmaster General—is a member of the President's Cabinet. (See *Government.*) Its more than one-half million miles of postal routes (exclusive of rural-free-delivery routes), served by transport ranging from dog team to airplane, are the backbone of U. S. communications. In addition, the department manages a banking business, an express service, and a system for the transfer of money in the country.

The Post Office Department, as of May 1943, had 302,000 employees, and approximately 43,000 post offices and stations. Mail is distributed on regular city and village routes by 61,000 carriers. In outlying areas, 33,000 rural-free-delivery carriers travel one and one-half million miles a day to serve 29 million residents.

The value of its postal service to the United States is inestimable in terms of money. But the system's annual gross revenue amounts to nearly $6 for every man, woman, and child in the country. The government operates it, as a public service, at a net loss of about 12 million dollars. It issues more than 19 billion ordinary postage stamps a year, carries more than 125 million special-delivery letters, and transfers more than 3 billion dollars through money orders. Its saving system has on deposit nearly $1,600,000,000 belonging to nearly 3,200,000 depositors.

The railway postal system operates 175,778 miles of routes, over which its railway post offices travel almost 465 million miles a year. It has 20,640 employees, maintains 647 complete railway-post-office cars and 2,969 post offices within other railway coaches. Air-mail service, prior to the war, had expanded to serve every one of the 48 states, Alaska, Hawaii, Mexico, Central and South America, and most of the countries of Europe, Asia, and Africa via transoceanic routes. In 1942, U. S. air mail was flown 89 million miles over 44,623 miles of routes.

Since the war the Post Office Department has been carrying the new burden of handling mail to and from the U. S. armed forces, at home and abroad. Hundreds of special post offices have been established at Army camps. To facilitate transport of mail overseas—where over two million U. S. soldiers and sailors are already stationed—the department has inaugurated the V-Mail service. V-Mail letters are written on lightweight combination letter forms and envelopes, provided by the post office. To dispatch 150,000 of them requires 22 mail sacks weighing 1,500 pounds, whereas the same number of ordinary single-sheet letters would require 37 sacks weighing 2,575 pounds. When still greater economy in shipping space is necessary, V-Mail letters are photographed on special 16-mm. film (microfilm) and sent abroad in that form. The addressee receives a photograph, about 4 by 5¼ inches, of the original message. Microfilm on which 150,000 letters have been photographed requires only one mail sack weighing only 45 pounds.

TELEPHONE SERVICE

The telephone is an American invention, and is widely used in the United States as a means of business and personal communications. In 1941 there were 24½ million telephone instruments in the United States, 14 million of them in private homes. This is almost half the total number of phones in the world. About two out of every five U. S. families have telephones in their homes.

In the United States the telephone service is a commercial enterprise. One concern, the American Telephone and Telegraph Company, and its inter-connected subsidiary companies, dominates the field. In the entire country in 1941 there were 105,550,000 miles of telephone wire. Phone companies employ nearly 400,000 persons, of whom about 175,000 are operators providing service in 19,000 central stations. More than 4,000 centrals to which are connected more than 14 million phones, are now equipped with automatic dialing systems, which enable the telephone user to put through his own local calls without the service of an operator.

Another service provided by telephone companies to many business houses and public agencies is the teletypewriter. The teletype operator transcribes a message on a keyboard resembling that of an ordinary typewriter, and it is instantly reproduced, letter by letter, on a sheet of paper before an operator at the other end of the line, or, perhaps, on dozens of connected machines at different points on the line.

Radiotelephone service, as provided by telephone companies, is treated later in this section.

TELEGRAPH SERVICE

The telegraph is also an American invention. The first U. S. line, only 44 miles long, was opened in 1844. By 1942 the U. S. telegraph system embraced one-fourth million miles of line, with two and one-third million miles of wire. Its operation and maintenance requires the services of 68,500 employees. Messages may be filed at 40,000 offices and agencies. The system is almost wholly the property of two major companies, Western Union Telegraph and Postal Telegraph, recently merged. About 650,000 additional miles of wire, owned and operated by U. S. rail carriers, serve to expedite traffic on the nation's railway lines.

Since 1940, new telegraph lines have been put in operation to serve scores of military and naval establishments, and in 1941 a 32,000-mile network of lines was completed to handle the weather-reporting service of the Civil Aeronautics Administration.

OCEAN CABLE SERVICE

In spite of advances in the range and quality of radio communication, most of the urgent overseas message traffic is still handled via submarine cable. The world's ocean cables aggregate 500,000 miles, of which 92,000 are operated by six companies serving the United States: Western Union Telegraph, All America Cables and Radio, Commercial Cable, Commercial Pacific Cable, French Telegraph Cable, and Mexican Telegraph.

Today the only direct cable connections between the United States and Europe are with the United Kingdom, Eire, and

the Spanish peninsula via the Azores. But the United Nations dominate nearly all the world's ocean areas and thus control, too, most of the remaining subsea lines. A modern cable transmits up to 2,500 letters a minute.

RADIO COMMUNICATIONS

Exclusive of the domestic broadcasting industry (for which see *Press, Motion Pictures, and Radio*), U. S. radio communication is of four general classes: short-wave broadcasting, chiefly for overseas consumption; public radiotelegraph and radiotelephone service; private services maintained by amateurs, specialized commercial interests, or public agencies; military and naval systems.

In 1942 there were 21 major U. S. short-wave stations in the foreign-broadcast service, and 15 more were under construction. Now under centralized control, they direct their transmissions to all parts of the world in 24 different languages. News broadcasts are the foundation of most of the programs, which have already won a reputation for truthfulness.

The seven chief radiotelegraph companies serving the U. S. public are: R.C.A. Communications, Mackay Radio and Telegraph, Radiomarine of America, Press Wireless, Globe Wireless, Tropical Radio Telegraph, and United States-Liberia Radio. These and other companies operate about 75 transmitters and the same number of receiving stations. Most of their traffic is international, but some domestic service is provided. Ship-shore message traffic has dwindled because of the radio silence now maintained by most vessels at sea. Some of the nearly 200 fixed (point-to-point) circuits formerly operated by U. S. radiotelegraph carriers have also been disrupted by war conditions, but in many cases indirect service is still available through rerouting.

Despite the war, combined telephone and radio facilities still provide phone service between the United States and virtually any part of the world not enemy controlled. War traffic has swelled the volume of radiotelephone calls to England, the Far East, and South America to an unprecedented degree. This long-distance traffic is handled by four main coastal radio stations. In addition, some 30 coastal-harbor stations provide a widely used ship-shore phone service for the inland, harbor, and coastwise shipping trade.

Amateur radio operators before the war numbered 60,000, nearly all with their own stations. All amateur communication, however, has been suspended, except as specifically authorized by the Board of War Communications. Many amateur stations are affiliated with the Army Amateur Reserve System and the Naval Communications Reserve, and their operators have received valuable training while rendering important services to their country.

In 1941 more than 5,000 ship radio stations were licensed on U. S. merchant vessels of all types. An unknown but considerable number of ship radios has been placed in service since that time. For the duration of the war, ship radios, except those in service in coastal, harbor, and inland waters, will be generally restricted to emergency use.

Radio is an indispensable adjunct of modern aviation. In 1941 there were almost 3,000 non-military aviation radio stations in the United States, and the number was rapidly increasing. That total included aircraft, navigational, flying-school, air-line, and airport-control stations.

There are 3,000 U. S. radio stations classed as "emergency" services. These include police radios, both fixed and mobile units; fixed, mobile, and portable stations of the U. S. Forest Service, used in reporting forest fires and dispatching fire-fighting crews; marine fire stations, for intercommunication between fire headquarters and fireboats; special stations of organizations functioning in disaster relief; public-utility stations which dispatch repair and relief crews. There are also a few hundred stations licensed for such purposes as geological services, special press services, and short-range communications on large construction jobs.

No detailed tabulation of military and naval radio communication is possible. But there is scarcely an operation of the armed forces in which it has no part. It is indispensable to the functioning of naval vessels and military aircraft. It is used by Signal Corps units attached to all combat organizations of the Army. It is used by the Army's Aircraft Warning Service and by many artillery, tank, and reconnaissance units. In this war it is probably destined to displace the telephone to a considerable extent in providing field communications under actual combat conditions.

FEDERAL COMMUNICATIONS COMMISSION

U. S. telephone, telegraph, and radio systems, privately owned and operated, are subject to strict regulation and supervision by the Federal Communications Commission. A special agency, the Board of War Communications, is at present empowered to direct FCC's wartime function. (See *Government.*)

FCC has 28 field offices and over 100 inspectors. These inspectors regularly check up on all classes of radio stations, to make sure they operate in accordance with the terms of their licenses. They examine radio operators seeking licenses. They investigate complaints of unlawful radio operation, interference to reception, or other departure from normal service.

In peacetime seven regionally distributed FCC monitoring stations, through constant listening, made certain that all transmissions were in accordance with treaties, laws, and regulations. It is an indication of radio's importance in wartime that in 1943 these monitoring stations are 87 in number, plus 95 mobile direction-finder stations for tracking down unlawfully operating transmitters.

A second vital war activity of FCC is the Foreign Broadcast Intelligence Service, which operates monitoring services 24 hours a day. At four widely separated listening posts a force of technicians, translators, and analysts daily transcribes and reports over a million words, almost entirely of foreign-language broadcasts. Each station is connected with a central Washington office by radio, telephone, teletype, and telefacsimile, and all intercepted material of any significance is immediately transmitted to the government officials to whom it might be useful.

* * *

FINANCE AND TRADE

In 1942 there were more than 45 million savings accounts in the U. S. and ten million people owned stock in one or more corporations. Millions of people who had never bought a bond before are now buying war bonds, others are paying income taxes for the first time. Thus a fairly high percentage of Americans are personally interested in business and finance.

There were in 1939, according to the 1940 census, 184,000 manufacturing plants in the United States, 200,000 wholesale establishments, 1,800,000 retail stores, and 650,000 service organizations. Many of these are doing war work exclusively. Some have gone out of business. Others are carrying on as well as they can, as the pinch of America's war program is increasingly felt in such businesses as retail

trade. Large department stores and mail-order houses have less to sell, and have shifted their emphasis from the durable goods no longer available to dry goods, clothing, and substitute items.

PER CAPITA INCOME

As the war continues, Americans tighten their belts and reach deep into their pockets. Still relatively blessed in comparison with other nations in regard to per capita national income, America's citizens know that more and more of it will go to pay for the war. The U. S. national income per capita in 1940 was about $584; by 1942 it had reached about $883.

LIFE INSURANCE AND THE WAR

U. S. citizens had about 125 billion dollars' worth of life insurance (excluding national service life insurance) in force in 1942. This investment does not interfere with the war effort because insurance companies are putting more and more of their funds into government bonds; almost all of their new investments are in government securities. The increase in such holdings was about 3 billion dollars in the year 1942.

THE BANKING SYSTEM

There were 14,728 operating banks (commercial and savings) and trust companies in the United States as of September 30, 1943. Industry and business are highly dependent on banking institutions for loans for working capital purposes and for the everyday business of transferring money. In the U. S., only small deals are consummated by the use of cash.

FEDERAL RESERVE SYSTEM

Practically all large transactions are by check, and this has been increasingly true ever since the establishment in 1914 of the Federal Reserve System. America's equivalent of the Bank of England, this is the government-operated central banking system of the nation.

Twelve Federal Reserve banks constitute the regional operating machinery of FRS: in Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, St. Louis, Minneapolis, Kansas City, Dallas, and San Francisco. These banks and their branches in certain other cities function as clearing houses for checks, hold deposits for member banks which may call for cash in an emergency, issue currency, and generally act to stabilize credit and currency.

Before FRS was established, banks kept reserve money on hand or in other banks, usually big city banks. Bank panics were hard to handle because it was sometimes difficult for small or remote banks to get needed cash quickly. Also, failure of a city bank holding large deposits of many small banks could cause their collapse too. FRS serves to prevent these difficulties.

Of the $17,114,000,000 currency in circulation in the United States in May 1943, $13,440,000,000 was in the form of Federal Reserve notes; the remainder was in Treasury notes and coin. Federal Reserve notes, direct obligations of the U. S. Government, are secured by collateral in the Federal Reserve banks. Thus FRS is the backbone of the banking system.

On June 30, 1943, there were 6,703 banks belonging to FRS. Most other banks use its check-clearing facilities.

THE FEDERAL DEPOSIT INSURANCE CORPORATION

Established in 1933, this corporation insures all bank deposits up to $5,000 in its 13,466 (as of September 30, 1943) member banks. The number of insured banks is continuing to increase rapidly and in March 1943, FDIC was providing protection for more than 65 million accounts.

The corporation acts as receiver for suspended national banks and sometimes for suspended state banks. The insurance reserve which enables it to operate is built up through annual payments of 1/12 of 1 percent of the average deposits in each member bank. Bank failures have practically ended since 1934; the yearly average is only about 6 percent of what it was during the period 1921-29, less than 1 percent of what it was from 1929-32. However, when a bank does suspend (not always equivalent to failure), should it be unable to pay off its depositors, FDIC immediately does so—up to $5,000 on any one account.

EXPORTS AND IMPORTS

Peacetime export markets in many cases have shrunk to the vanishing point, but largely through lend-lease operations the U. S. export balance is headed for record highs.

Stimulated by Lend-lease (see page 122), exports from the United States in the first five months of 1943 amounted to nearly $4,500,000,000, a 58 percent increase over the corresponding 1942 period. In terms of physical volume, present exports far exceed any previous movement.

Arrivals of foreign merchandise (general imports) from January 1943 through May 1943 were valued at about $1,250,000,000. This was 4 percent more than for the same period in 1942.

LATIN AMERICAN TRADE

This does not follow the general pattern. U. S. imports of merchandise, including gold and silver, from the 20 Latin American republics in the first six months of 1942 exceeded exports to those countries by 240 million dollars, compared with 181 million dollars for the like period of 1941. This increase occurred despite the fact that exports to the 20 republics during the six-month period were at the 1941 level.

Striking increases in the import balance occurred in trade with Mexico, Brazil, Colombia, and Chile. The only sizable export balance for the six months was recorded in trade with Panama and Venezuela.

FINANCING THE WAR

There are two ways of financing war—by taxation and by borrowing. Broadly speaking, the more taxation and the less borrowing, the less the danger of inflation. A country at war must tax to the greatest extent consistent with maximum production, which in turn depends on maintaining morale and incentive and preserving the economic structure. In a major war, some borrowing is unavoidable.

In the last war, yearly U. S. Government expenditures rose from around $700,000,000 to $18,500,000,000, or somewhat less than one-third of the national income.

In the current war, expenditures rose from 9 billion dollars in the fiscal year ended June 30, 1940, to $78,179,000,000 in the year ended June 30, 1943. Total expenditures for the fiscal year ending June 30, 1944, are estimated at 104 billion

dollars; of this total, 97 billion dollars are earmarked for war purposes.

SOURCES OF FUNDS

The three principal sources of funds for financing the vast war program are taxation, borrowing from individuals and corporations, and borrowing from the commercial banks.

Of the three methods, taxation is favored because it helps pay for the war now and avoids increasing the national debt; it also retards the growth of consumer purchasing power which threatens inflation.

The next most favored method of financing is through sales of bonds to individuals and corporations, who pay for them out of current income or out of savings. While this increases the debt, it helps to siphon off the excess purchasing power of consumers.

Borrowing from commercial banks, while unavoidable in financing a war program, involves both a debt increase and an expansion of bank credit which adds to purchasing power.

In the last war, tax receipts rose from 700 million dollars to over 5 billion dollars, covered at the peak less than 30 percent of total expenditures, and were less than 10 percent of the national income.

In this war, net receipts of the federal government increased from $5,400,000,000 in 1940 to about 22 billion dollars in 1943. They are estimated at about 38 billion dollars for 1944, about 35 percent of total expenditures and slightly less than 25 percent of estimated national income. In addition to federal taxes, state and municipal taxes run to about 10 billion dollars annually.

Treasury borrowing in the last war increased the public debt from $1,300,000,000 to $26,600,000,000. This borrowing took the form largely of Liberty Bond loans subscribed to by millions of individual purchasers, many of whom borrowed temporarily from banks to finance their purchases.

In this war, the federal debt, direct and guaranteed, has increased from $48,500,000,000 in June 1940 to $140,800,000,000 in June 1943, and is expected to reach $207,000,000,000 by June 1944. Main instrument for placing securities with the public is the Series E war savings bond, issued in denominations as low as $25 and maturing in 10 years but redeemable any time after 60 days. Sales of these bonds in the summer of 1943 were at the rate of about 700 million dollars monthly, with some 31,200,000 workers purchasing them through regular payroll deductions. Most firms now have a voluntary 10 percent deduction system.

The Treasury is also reaching large amounts of savings through regular open-market bond issues sold to insurance companies, savings banks, and other long-term investors, and through Social Security and other government trust funds invested in U. S. securities.

Despite such financing out of savings, the magnitude of the war program has made necessary substantial borrowing by the Treasury from commercial banks, whose holdings of government securities increased from 26 billion dollars in June 1942 to about 52 billion dollars in June 1943.

RISE IN TAX RATES

American income tax rates have always been low compared with those in England and some other European countries. Since the start of the expanded national defense program in 1940, however, both individual and corporation income-tax rates have increased steeply.

In the personal income taxes, exemptions in 1940 were lowered from $2,500 to $2,000 for married couples, and from $1,000 to $800 for single persons. In 1941 they were lowered to $1,500 and $750 respectively, and by 1942 they were down to $1,200 and $500 with the credit for dependents reduced from $400 to $350. In 1943 the rates were left unchanged but Congress enacted a measure providing for the current collection of individual income taxes by means of a withholding tax. (People whose tax is not completely covered by withholding must file quarterly returns of estimated income.) This did not affect the tax rate and was merely a new method of collecting the tax.

Graduated surtaxes, which in 1939 began at $4,000 with a rate of 4 percent and reached a maximum of 75 percent on the largest incomes, now apply to the first dollar of net income (in excess of exemptions) and in 1941 ranged from 6 to 77 percent. The 1942 act increased surtaxes to a range of 13 to 82 percent, the top rate applying to everything above $200,000.

The normal tax is increased from 4 percent to 6 percent, and a 3 percent "Victory tax" is imposed on all incomes over $624 a year, with limited provisions for rebates and credits.

Due to lowered exemptions, lowered credit for dependents, and introduction of the Victory tax, the total number of taxpayers is expected to reach nearly 50 million people. Only 17 million paid income taxes in 1941, 4 million in 1939.

Comparison of Present Federal Income Taxes with Those in Effect in 1941 and in 1939

Gross Income	1939	1941	1942-3
$750	—	—	4
1,000	—	—	11
1,500	—	—	47
2,000	—	23	144
2,500	—	66	242
3,000	—	109	340
4,000	30	199	548
5,000	62	312	770
6,000	94	425	1,001
7,000	127	571	1,259
8,000	187	720	1,518
9,000	256	894	1,813
10,000	329	1,079	2,107
15,000	746	2,246	3,856
25,000	2,004	5,694	8,522
50,000	7,224	17,499	23,363
100,000	36,369	45,919	59,753
500,000	267,194	307,084	393,969
1,000,000	600,094	654,554	890,000

Total tax shown includes normal tax, surtax, and Victory tax. Example is for married couple, with no dependents, having all earned income, and with no allowance for state income taxes. Since exemptions naturally vary, any such table is, of course, approximate.

Also, the combined normal tax and surtax on the larger corporations was raised from 18 percent in 1939 to 31 percent in 1941. In 1940 an additional tax on "excess profits" was introduced at graduated rates of 25 to 50 percent and was raised to 35 to 60 percent in 1941. The 1942 tax rates fix the combined normal and surtax rates at 40 percent, with excess profits taxed at a flat rate of 90 percent, subject to a 10 percent postwar rebate, which may be taken currently in part by a debt-reduction credit, and subject also to a ceiling of 80 percent on the total tax (normal, surtax, excess profits) that any corporation would have to pay.

While corporate net income before taxes has in the aggregate risen sharply under the expansion of war activity, much of this increase has been siphoned off by taxes. Despite this, net after taxes increased in the three years 1940, 1941, and 1942. In 1941 it neared the peak level of 1929 and in 1942 it exceeded the former high.

WAGE AND PRICE CONTROL

With practical limitations on war financing by taxes and voluntary savings, and with a growing shortage of consumer goods available, the government has taken steps to supplement the fiscal program with direct controls over wages and prices. Since the outbreak of war in Europe in September 1939, U. S. wholesale prices have increased by 32 percent and cost of living by 28 percent.

Acting under authority granted by Congress, the President on October 3, 1942, established an Office of Economic Stabilization (James F. Byrnes, director) charged with developing "a comprehensive national economic policy relating to the control of civilian purchasing power, prices, rents, wages, salaries, profits, rationing, subsidies, and all related matters—all for the purpose of preventing avoidable increases in the cost of living, cooperating in minimizing the necessary migration of labor from one business, industry, or region to another and facilitating the prosecution of the war."

The program provides for the stabilization (with certain exceptions) of wages and agricultural prices at levels not higher than those which prevailed on September 15, 1942; and forbids salary increases to persons earning $5,000 or over without government approval.

Already existing price controls over materials, manufactures, and retail goods (see page 20) were thus broadened, and rent control was extended to include non-defense as well as defense areas.

GROWTH OF PRODUCTION

The standard measure of U. S. manufacturing activity is the index of industrial production computed by the Federal Reserve Board. This index rose 44 percent from June 1940 to June 1942, and an additional 21 percent by June 1943, at which point it was 75 percent above the former (July 1929) peak. It is estimated that well over half of total current production represents war supplies.

Agricultural production in 1942 was the largest for any year in U. S. history and 12 percent higher than in 1941. Goals for most crops in 1943 are still higher. This huge output is making it possible to satisfy the vast requirements of the armed forces and lend-lease shipments, meanwhile leaving adequate, though not lavish, supplies to be rationed for essential home needs.

SALARIES AND WAGES

The American people received $48,349,000,000 in salaries and wages in the first six months of 1943. This compares with $36,538,000,000 in the first six months of 1942, and $22,278,000,000 in the first six months of 1939.

SAVINGS

Department of Commerce estimates that savings in the first half of 1943 were about $16,400,000,000, compared to $10,000,000,000 for the comparative 1942 period, and $26,900,000,000 for the full year 1942.

CONSUMER EXPENDITURES

Department of Commerce economists estimate that total consumer expenditures in 1942 reached 82 billion dollars—54 billion dollars for goods and 28 billion dollars for services. This represents a smaller total than people would like to have spent if the goods had been available; however, they are partially offsetting this by reducing debts and buying bonds.

Wholesale inventories have steadily declined, and retail stocks are beginning to be depleted. With more and more of America's resources being diverted for war purposes fewer goods will be available for civilian use, despite increased consumer income.

Government economists foresee the need for rationing more goods and for taking stronger measures to channel more consumer spending power into savings and taxes. To cut down consumer spending is the basic problem of the civilian wartime economy in which civilians have more money to spend than there are goods available.

DEFENSE

THE U. S. ARMY

On June 1, 1943, there were more than two million U. S. troops serving at scores of points abroad. Many were already in the thick of fighting, both in the air and on the ground.

In the Southwest Pacific theater, U. S. Army Air Forces were working closely with the Australians and New Zealanders to blast the Japanese out of their stolen island empire, while American ground forces had occupied several islands once held by the enemy. (See *Navy*.)

Far to the north, off Alaska, the Army had wrested the island of Attu from the Japanese after bitter fighting under almost impossible conditions, and the Japanese had abandoned their position at Kiska.

In England, hundreds of thousands of American soldiers stood ready to invade enemy-held Europe, while U. S. airmen helped to open the way by spectacularly successful raids on the enemy's factories, shipyards, and other war targets. In this way they were collaborating with the British.

This teamwork has characterized a good deal of the U. S. Army's activity in the present war. The landing of troops in French North Africa was a combined operation of Great Britain and the U. S. The two armies coordinated their efforts with those of the French in throwing the Italians and Germans out of Tunisia. When the invasion of Sicily took place, British, Canadians, and Americans again teamed up, each with their own task to perform but with the success of each dependent on the others. In this gigantic operation, the several branches of each army, both in the air and on the ground, and the navies of six United Nations were all coordinated into one huge force which brought victory on August 17 after 38 days of fighting, resulting in the occupation of an area as large as Switzerland, and the capture of 167,000 Axis soldiers. (See *Navy*.)

On September 9, U. S. soldiers landed at Salerno on the Italian mainland and after a bitter eight-day battle had the Nazi forces retreating northward before a steady Allied advance.

This is the line-up of the chief U. S. Army commanders and their posts as of November 1943:

HIGH COMMAND

General George C. Marshall, Chief of Staff.
Lieutenant General Joseph T. McNarney, Deputy Chief of Staff.

General Henry H. Arnold, Commanding General, Air Forces.
Lieutenant General Brehon B. Somervell, Commanding General, Army Service Forces.
Lieutenant General Lesley J. McNair, Commanding General, Army Ground Forces.

NORTH AFRICAN THEATER OF OPERATIONS

General Dwight D. Eisenhower, Commander in Chief.
Lieutenant General Mark W. Clark, Commander, Fifth Army.
Lieutenant General George S. Patton, Commander, Seventh Army.
Lieutenant General Carl Spaatz, Commanding General, Air Forces.

EUROPEAN THEATER OF OPERATIONS

Lieutenant General Jacob L. Devers, Commanding General.
Lieutenant General Ira C. Eaker, Commander, Eighth Air Force.
Major General William E. Kepner, Fighter Command.
Brigadier General Frederick L. Anderson, Bomber Command.

SOUTHWEST PACIFIC THEATER OF OPERATIONS

General Douglas MacArthur, Commander in Chief.
Major General Richard K. Sutherland, Chief of Staff.
Lieutenant General Millard F. Harmon, Commanding General, South Pacific Area.
Lieutenant General George C. Kenney, Commander, Allied Air Forces.
Major General Ennis C. Whitehead, Deputy Commander, Fifth Air Force.
Lieutenant General Walter Krueger, Commander, Sixth Army.
Major General Ralph J. Mitchell (USMC), Solomons Air Commander.

CHINA-INDIA-BURMA THEATER OF OPERATIONS

Lieutenant General Joseph W. Stilwell, Commanding General.
Major General George E. Stratemeyer, Commander, Air Forces.
Major General Claire L. Chennault, Commander, Fourteenth Air Force (China).
Brigadier General Howard C. Davidson, Commander, Tenth Air Force (India).

CENTRAL PACIFIC AREA

Lieutenant General Robert C. Richardson, Commanding General.
Major General Willis H. Hale, Commander, Seventh Air Force.
Brigadier General Truman H. Landon, Bomber Command.
Brigadier General Robert W. Douglass, Fighter Command.

ALASKAN AREA

Lieutenant General Simon B. Buckner, Commanding General.
Major General Davenport Johnson, Commander, Eleventh Air Force.

MIDDLE EAST AREA

Major General Ralph Royce, Commanding General, Army Forces.
Major General Donald H. Connolly, Persian Gulf Service Command.

NEWFOUNDLAND AREA

Major General John B. Brooks, Commanding General.

CARIBBEAN AREA, PANAMA CANAL

Lieutenant General George H. Brett, Commanding General.
Major General Hubert R. Harmon, Commander, Sixth Air Force.

ANTILLES AREA

Major General Henry C. Pratt, Commanding General.

UNITED STATES DEFENSE COMMANDS

Major General George R. Grunert, Eastern Defense Command, Deputy Commander, First Army.
Lieutenant General Lloyd R. Fredendall, Central Defense Command, Commander, Second Army.
Lieutenant General Courtney H. Hodges, Southern Defense Command, Commander, Third Army.
Lieutenant General Delos C. Emmons, Western Defense Command, Commander.
Lieutenant General William H. Simpson, Commander, Fourth Army.

ORGANIZATION

The U. S. War Department is headed by the Secretary of War. The Under Secretary is responsible for Army procurement policies. The Director of Production is subordinate to the Under Secretary. The Assistant Secretary has general administrative duties. The Assistant Secretary of War for Air has special duties in regard to the Army Air Forces.

In March 1942 the War Department was reorganized, to streamline Army activities and to relieve the fighting forces of supply, procurement, and general "housekeeping" duties. Now the department has three major divisions: Ground Forces, Air Forces, and Service Forces. Air and Ground Forces are merged into fighting teams under commanders of particular theaters of operations, in defense commands, or in major task forces. Army activities are coordinated by the General Staff, which formulates plans and policies. The General Staff has been reduced in size, and about half of its members are drawn from the Air Staff. The Chief of Staff and the Commanding General of the Air Forces also sit as members of the Joint Chiefs of Staff (U. S. Army and Navy) and the Combined Chiefs of Staff—United States and Great Britain.

GENERAL STAFF

The Chief of Staff (General George C. Marshall) is commanding general of the field forces in peacetime and continues in that capacity in wartime until the President designates other commanders. The Deputy Chief of Staff is Lieutenant General Joseph T. McNarney. There are assistant chiefs of staff for G-1 (Personnel), G-2 (Military Intelligence), G-3 (Organization and Training), G-4 (Supply), and for Operations.

ARMY SERVICE FORCES

Commanding General of the Army Service Forces is Lieutenant General Brehon Somervell. He is directed by the Under Secretary of War in procurement matters and reports to the Chief of the General Staff on military matters. He

This is a copy of the map which appeared in General Marshall's Biennial Report, July 1, 1941, to June 30, 1943

DEPLOYMENT OF AMERICAN TROOPS

With Arrival Date of First Contingent

NEWFOUNDLAND, Jan. 29, 1941
BERMUDA, April 20, 1941
TRINIDAD, May 5, 1941
GREENLAND, June 30, 1941
BRITISH GUIANA, July 20, 1941
ST. LUCIA, Aug. 4, 1941
ICELAND, Aug. 6, 1941
ANTIGUA, Oct. 2, 1941
JAMAICA, Nov. 21, 1941
SURINAM, Dec. 3, 1941

BRAZIL, Dec. 19, 1941
GUATEMALA, Dec. 22, 1941
AUSTRALIA, Dec. 22, 1941
ECUADOR, Jan. 16, 1942
HAITI, Jan. 19, 1942
CUBA, Jan. 20, 1942
BRITISH ISLES, Jan. 26, 1942
FIJI ISLANDS, Jan. 29, 1942
EGYPT, Feb. 2, 1942
CHRISTMAS ISLAND, Feb. 10, 1942

ARUBA, Feb. 11, 1942
CURACAO, Feb. 11, 1942
CANTON, Feb. 13, 1942
BORABORA, Feb. 17, 1942
NEW CALEDONIA, Mar. 12, 1942
CHILE, Mar. 15, 1942
EFATE, Mar. 18, 1942
ASCENSION, Mar. 30, 1942
LABRADOR, April 9, 1942
FANNING ISLAND, April 26, 1942

LIBERIA, May 6, 1942
TONGATABU ISLAND, May 9, 1942
GALAPAGOS ISLANDS, May 9, 1942
INDIA, May 16, 1942
CHINA, May 16, 1942
ESPIRITU SANTO, May 28, 1942
NEW ZEALAND, May 30, 1942
BAHAMA ISLANDS, June 2, 1942
GUADALCANAL, Aug. 7, 1942
PERU, Aug. 15, 1942

TONGAREVA, Nov. 8, 1942
NORTH AFRICA, Nov. 8, 1942
AITUTAKI, Nov. 14, 1942
IRAQ, Dec. 11, 1942
IRAN, Dec. 11, 1942
SICILY, July 10, 1943
ITALY, Sept. 9, 1943

Before the war the U.S. had regular established bases in Alaska; Hawaii; Panama; Philippines; Puerto Rico.

has a chief of staff and assistant chiefs for personnel, operations, and matériel. Specific functions pertain to the training division, fiscal division, the Adjutant General, administrative services, supply services, the U. S. Military Academy, and nine service commands. The WAC, Office of Chief of Chaplains, and Special Service Division are under the jurisdiction of the Director of Personnel.

The Adjutant General is in charge of records, communications, orders, regulations, and recruiting.

Among administrative services, the National Guard Bureau issues instructions for training of the State Guards replacing the National Guards now in federal service. The Chief of Finance disburses and accounts for War Department funds. The Judge Advocate General is the department's legal authority. Also under administrative services are the Provost Marshal General (head of military police), and the Army Exchange Service supervising Army exchanges, where soldiers can buy a wide variety of goods at low cost.

Under A. S. F., the Quartermaster General supplies food, clothing, and equipment other than munitions. The Chief of Ordnance is responsible for munitions; the Chief of Chemical Warfare Service is similarly responsible for his branch. The Chief Signal Officer has charge of signal equipment and coordinates radio and other communications. The Surgeon General advises on medical and sanitary matters and supervises the Medical Corps, Dental Corps, Veterinary Corps, Medical Administrative Corps, and Army Nurse Corps. The Chief of the Army Transportation Corps has charge of all War Department transportation inland and overseas. Also under A. S. F. is the Chief of Engineers, who is responsible for all Army construction at home as well as in combat.

Since the war, the U. S. Military Academy at West Point, N. Y., graduates officers in three years, and places increased emphasis on training Air Forces officers. Two of the War Department's general service schools (the Army War College and the Army Industrial College, both at Washington, D. C.) have been discontinued for the duration. The former trained officers for wartime command and staff positions in field armies; the latter, for munitions procurement and industrial mobilization. A third general service school, the Command and General Staff School at Fort Leavenworth, Kansas, is still in operation. These three schools, as well as the Military Academy, are under A. S. F.

Nine service commands, based on approximately equal population areas and each with a general commanding, are the territorial divisions of the A. S. F. in the continental United States. A 10th Service Command—the Northwest Service Command—has been established at White Horse, Yukon Territory, Canada. Overseas U. S. areas—Hawaii, Panama Canal, and Puerto Rico—constitute separate departments.

ARMY GROUND FORCES

Commanding General of the Ground Forces is Lieutenant General Lesley J. McNair. He has a staff organized on the lines of the General Staff. There are directors of various specific functions and an adjutant general.

The commanding general of the Ground Forces is responsible for the operation of all Ground Forces training centers and for everything required to prepare troops for combat duty. His final responsibility is supplying Ground Forces personnel to the field forces.

ARMY AIR FORCES

Commanding General of the Air Forces is General Henry H. Arnold. He has a chief and deputy chief of staff. There is an Air Staff including Chief of Staff and several assistants for special functions, as there are in the Ground Forces; also Training, Matériel, Air Transport, Air Service, and Proving Ground Commands.

The commanding general of the Air Forces trains and equips Air Forces units for combat and supplies them, as required, to the field forces. He also commands and controls all Air Forces stations and bases not assigned to field forces.

FROM PEACETIME TO WARTIME

On July 1, 1939, the regular Army of the United States consisted of approximately 174,000 men. There was no standing field army—only the framework of three army organizations, made up of regular Army and National Guard divisions, 50 percent complete as to personnel and widely scattered. The Air Corps consisted of but 62 tactical squadrons—perhaps 2,500 planes. Funds authorized for training were insignificant, equipment was largely obsolescent. Field training had been limited to the assembly of peace strength organizations called field armies about once every four years —and then only for a two-week period, of which but about five days could be devoted to maneuvers owing to lack of motor transport and the unseasoned state of personnel.

Prior to the outbreak of war in Europe, a 5,500-plane program was authorized for the Air Corps. An increase in Army personnel to 210,000 men was authorized. There was an appropriation of 116 million dollars for matériel and seacoast defense.

In September 1939, the Army was authorized to expand to 227,000 and the National Guard to 235,000. The War Department was authorized to spend 12 million dollars on motor transport. The National Guard was enabled to speed up its training program. In the spring of 1940, 70,000 regular Army troops held the first genuine corps and Army maneuvers in the nation's history. Nevertheless, there were not enough munitions and clothing for further Army expansion.

Following the European events of May and June 1940, Congress authorized an increase in the Army to 375,000 men and appropriated more than two billion dollars for it. Aircraft building and pilot training were accelerated. Field exercises, seacoast defenses, the ordnance program, Army clothing procurement, all benefited. The first armored force was planned.

That summer the National Guard was federalized and mobilized. In the fall, Selective Service became law. The Army began to build camps. The United States didn't go to war until more than a year later, but fortunately the Army was then already on its way to being a fighting force.

THE AMERICAN SOLDIER

SELECTIVE SERVICE

The President signed the Selective Training and Service Act on September 16, 1940. It was the first time in U. S. history that citizens were called up for military service in peacetime.

Selective Service is administered by local boards nominated by governors and appointed by the President. The board members, all of whom are unpaid volunteers, follow policy directives from the Selective Service Bureau in Washington, whose director is Major General Lewis B. Hershey. The

bureau functions under the War Manpower Commission. All decisions involving individuals, however, are independently made by each board. Any registrant except a government employee may take a local-board decision to an appeals board, even to a special presidential appeals board if there is a minority opinion among the appeals board members. A federal government employee may not request occupational deferment. His case is handled by an agency committee operating under a presidential order. The Army, aside from furnishing the quotas of men to be called, has no authority over Selective Service. The citizen leaves the jurisdiction of his local board and enters that of the Army only when actually sworn into service.

From the inception of Selective Service until the United States went to war, about 900,000 men were inducted. They were between 21 and 35, nearly all unmarried, and uniformly without important physical defects. At this point, the Army numbered about 1,600,000 men.

A few months after the U. S. was attacked, age limits of men subject to Selective Service were changed to 20-45; physical standards were somewhat relaxed. Army quotas were increased. In the latter part of 1942, local boards began drafting men with dependents; also they examined more carefully the qualifications of men for deferment because of the nature of their civilian employment. In November 1942 Congress lowered the age limit of Selective Service to 18. In December 1942, men 38 and over were no longer called for induction because the Army would not accept them, and direct enlistment of men between 18 and 38 was generally prohibited, in order to maintain a balance between the civilian and military needs of the nation. At this time the United States had an Army of about 5 million men, and the War Department announced an objective of 8,200,000 by the end of 1943.

ARMY LIFE

The newly inducted young man goes first to an induction station, where he stays not longer than one day. Here he is given an exhaustive physical examination. If he passes it, he is sworn into the Army immediately and then may, if he wishes, have a three weeks' furlough to put his affairs in order.

The Army recruit next goes to a reception center where he ordinarily remains for several days. He is instructed in Army regulations, military courtesies, sanitation, and the Articles of War. (The Articles of War are part of the military laws enacted by Congress to control the conduct of those in the military service; they govern the administration of military justice.) He gets further medical attention, including inoculations, and is outfitted with his uniforms. Most important, he takes the Army Classification Test, which will indicate what sort of Army service he is best fitted for by training and temperament. This test measures speed and accuracy in solving simple problems of a number of different kinds. It is the product of many years of research and experiment in determining aptitudes of Army recruits. It results in few serious errors, though of course it is not infallible. When the results of his classification test have been tabulated, the recruit is interviewed by a classification officer, whose personal estimate supplements the test in deciding how the soldier shall be assigned. Still more tests may be given later to discover specific aptitudes—for example, for such jobs as radio operators, engine mechanics, or electrical repair men.

The new soldier now goes to a replacement training center or is assigned directly to a unit. All arms and many special branches of the Army have their own training centers, where the basic training period is 17 weeks.

Today there are many hundreds of Army posts and camps in the continental United States. The soldier's quarters range from permanently heated barracks in the North to well-built wood-and-canvas tent houses in the South. All Army quarters are immaculate; the men are taught that it is a primary duty of the soldier to keep them so.

HEALTH

Excellent housing is one reason for the splendid health of the U. S. Army—the healthiest in American history. Another reason is the fact that the soldier's environment is carefully controlled and the Army does not permit him to neglect illness or injury.

Great emphasis is laid on preventive medicine. Also every soldier has the opportunity to answer daily sick call. If he does, he is promptly relieved from duty and sent to the doctor and, if necessary, to the hospital. In 1941 the Army had some 90,000 beds in 226 station and 15 general hospitals. Today these facilities have been increased to 51 general hospitals and more than 500 camp and station hospitals.

The Army Nurse Corps, headed by Colonel Florence A. Blanchfield, ministers to ailing and injured soldiers in hospitals. Army nurses are commissioned officers.

All camps with 10,000 or more troops have complete dental clinics. Smaller outfits have—even on maneuvers—at least one dental officer attached. Mobile medical units—including operating rooms and X-ray equipment—follow troops wherever they go in the field.

Army food is another factor in the soldier's good health. Nutritionally, he is far better fed than his predecessors were in the last war. The average soldier gains six pounds in his first six months of service. Incidentally, modern nutritional science has developed field and emergency rations in concentrated form, to be used in combat or on maneuvers when field kitchens are not available. These foods are scientifically designed to provide maximum energy and nourishment from minimum bulk and weight.

As a result of all these health services, the U. S. Army for six months in 1940 and 1941 had a death rate less than one-tenth as great as the training Army over a corresponding period in 1917-18. (See *Medicine*.)

RELIGION

Army camps have more than 1,200 chapels already in use or nearing completion. The chapels are built for worship by Catholic, Protestant, and Jew alike. Their furnishings and equipment are so arranged that when one service is completed they can be replaced quickly and in a dignified manner by equipment for services of another faith. Mobile chapels are also used in the field.

The Army chaplain is the soldier's friend and adviser. He visits the luckless lad in the hospital or the guardhouse. He corresponds, when the occasion warrants it, with the soldier's family.

OFFICER TRAINING

Junior officers are the keystone of the U. S. Army for they school the soldier and instill in him the confidence necessary to success in battle. In the democratic Army of the United States, many of these officers come from the ranks. Others are commissioned after completing courses for reserve officers in colleges and universities and undergoing further training in the Army. Under extraordinary circumstances, specialists are commissioned directly from civilian life.

After he has completed his 17 weeks of basic training, any warrant officer or enlisted man who has achieved a rating of 110 or higher in the Army classification test is eligible to apply for admission to an officer candidate school. There are schools for Infantry, Field Artillery, Coast Artillery (seacoast and antiaircraft), Cavalry, Engineers,

Signal Corps, Ordnance, Quartermaster Corps, medical administration, transportation, military police, Judge Advocate General, Armored Command, Tank Destroyer Command, chemical warfare, finance, the Adjutant General's Department, and Air Forces (aside from schools for flying officers).

At an average school, classes are held from 7:30 A. M. to 5:15 P. M., six days a week. Four nights a week, there is study hall. Learning is by doing, as well as by classroom work. Lectures are followed by demonstrations staged by crack troops, then by extensive practical work in which the candidate executes assignments himself. Each candidate also commands a platoon or company at various times, to gain confidence and experience.

Candidates start their course on an equal footing. The day they arrive, they take off chevrons and regimental insignia and cease to be privates or sergeants—they are just candidates. While learning to be officers, they are toughened by calisthenics, forced marches, and field exercises. When they graduate, they are as fit for combat duty as the men they will command.

Officer-candidate courses now last 17 weeks. Successful candidates are commissioned second lieutenants. Older men may be given advanced training to qualify them for promotion to ranks more in keeping with their age.

There are two standards of judgment for determining whether a candidate shall receive a commission—academic knowledge, as shown by written examinations, and leadership ability, as judged by the six officers assigned to each company of candidates. No matter how high a candidate's academic standing, if he lacks the self-confidence, the energy, the aggressiveness to be a leader of men, he is denied a commission and its attendant responsibility in wartime. The determining question is: Is this candidate qualified to lead men into battle?

NEW TIMES, NEW SOLDIERS

The average U. S. soldier today differs in many ways from the "doughboy" of 1917-18. Physically he is a better specimen—taller, heavier, more fit. He is better educated. The Army makes full use of his education and intelligence, for more and more in this war the average soldier must show initiative and the capacity for bold independent action. He dresses differently, in Army clothing designed for comfort as well as for utility. The puttees and choker collar are gone, and a new type of helmet—deeper, to protect neck and sides of head, but weighing only three ounces more, or two and one-half pounds—has replaced the shallow tin hat.

His training has been modernized, too. The old field manual has been revised, eliminating much elaborate instruction useful only on the parade ground. The Army has more specialists than ever, and for them the Manual of Arms is just an incident at the beginning of their training. For much instruction, the motion picture is replacing lectures by the sergeant. The Signal Corps Army Pictorial Service has made training films on more than 500 subjects. The Army finds they cut down instruction time as much as 40 percent.

The U. S. Army is or will be fighting on fronts all over the world, under every imaginable condition. At special training centers, therefore, men are learning to use the techniques and equipment required in desert warfare, in tropical jungles, in mountain warfare, in Arctic climates. Some units are trained to fight on skis and snowshoes. Others learn the methods of amphibious warfare—landing from sea on hostile shores, establishing and holding beachheads as the advance guards of invasion. Special tank-destroyer units, developed in secrecy, are a U. S. innovation which made a successful debut with the British Army in Egypt.

And now there are women, other than nurses, in the Army. The Women's Army Auxiliary Corps (WAAC) was created in May 1942, to release for combat service men performing certain noncombatant duties. On July 2, 1943 the President signed a bill incorporating the WAAC in the Army, thus changing the name to Women's Army Corps. Commanding officer of the corps is Colonel Oveta Culp Hobby. The WACS are taking over the major part of the Aircraft Warning Service and serve as radio and telephone operators, clerks, technicians, and administrators of various kinds. By June 1943, 65,000 WACS were in service. They are under military discipline and have their own training centers, uniform, and officer personnel.

COMBAT TROOPS AND THEIR WEAPONS

INFANTRY

The U. S. Infantry's insignia is crossed rifles; its color is light blue. The infantry is still the backbone of the Army, but it is more versatile than ever before. It is faster and better armed. (For its make-up, see *chart*.)

It is the infantry which must plunge into the breach in the enemy lines with weapons designed for close-quarter fighting, to overpower and destroy the defenders. Infantry may "break the crust" of a defensive position and thus prepare the way for a break-through. Or it may attack along with air and mechanized forces. It often has the mission of holding ground won and of protecting tank elements during their reorganization or assembly.

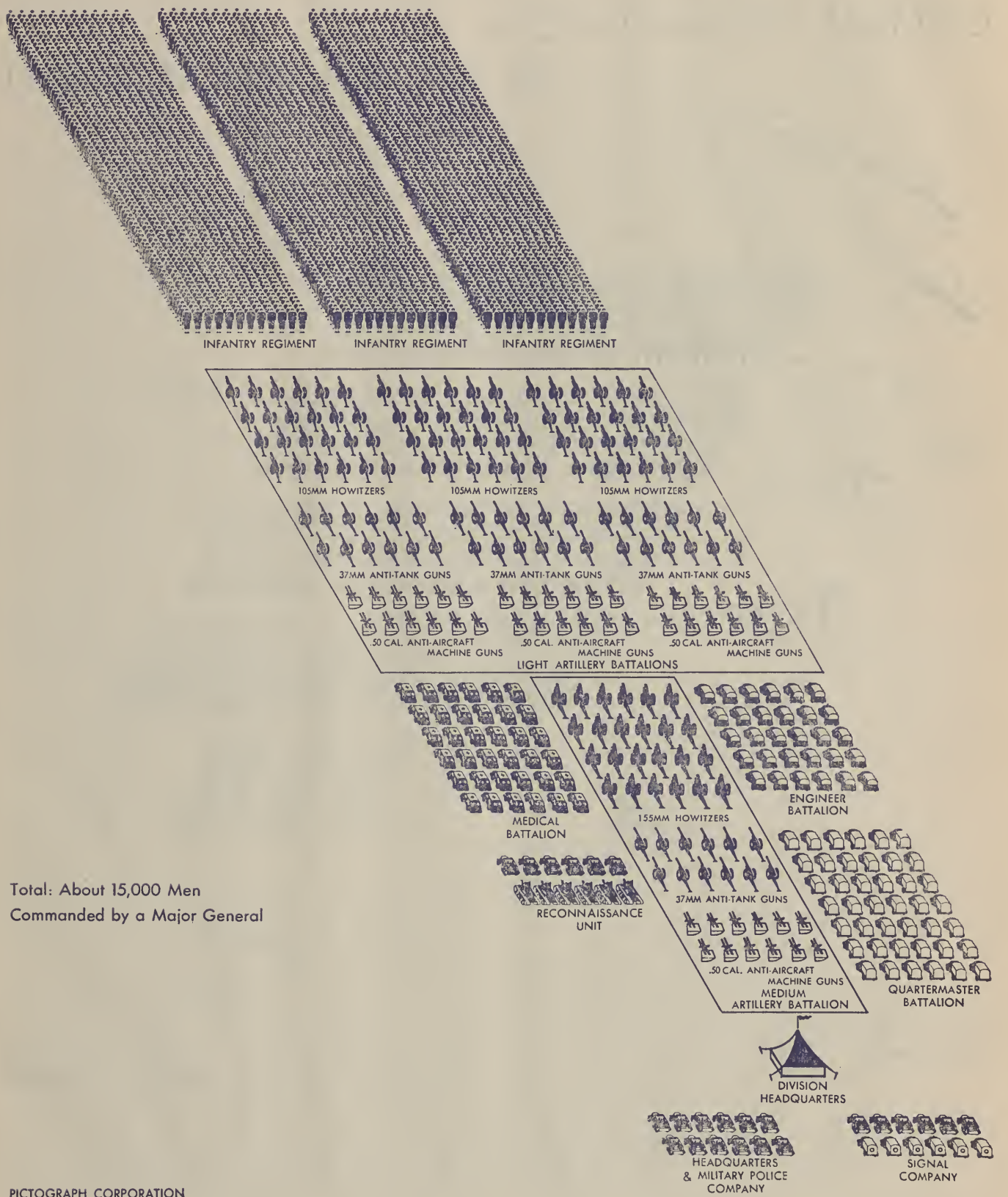
Motorization has given the infantry great mobility. But, though many an infantryman may ride to the scene of battle, his ability to make a fast march of 15 or 20 miles on foot is still a basic requirement. Rapid movement on foot has been facilitated by reducing the weight of his field pack from nearly 80 to 45 pounds.

The infantry's fire power has been greatly increased since the 1914-1918 war. Its basic weapon is the semi-automatic Garand or M1 rifle. It weighs nine pounds, plus a pound for the bayonet, and fires eight shots without reloading. With nearly three times the fire power of the old Springfield, the Garand has thoroughly proved its reliability in combat. But only three infantrymen in four now carry rifles. Some infantrymen now carry the lighter weight .30-caliber carbine which is also carried by company grade officers, replacing the pistol. The others operate machine guns, antitank guns, or mortars. The mortar is among the infantrymen's handiest fighting tools. It is little more than a short piece of pipe, supported on the ground, into which shells are dropped by hand. When a shell falls to the bottom of the pipe, it explodes a firing charge, and is expelled. The mortar is light in weight and can be set up and fired quickly. It throws a projectile at a high angle and short range. It is used chiefly to attack machine-gun nests or other targets which, because of irregularities in the ground, cannot be reached by direct, low-angle fire.

The newest infantry weapon is the bazooka, a rocket gun with which the foot soldier can stop enemy armor.

Special infantry troops are the Paratroop battalions. Parachutists are a rigidly selected, exhaustively trained body who look like men from Mars in battle dress and are among the toughest things on two legs. They fight with rifles or carbines, automatic pistols, submachine guns, light machine guns, 60-mm. mortars, bazookas, and hand grenades. Much of their equipment is dropped to them after they land from the air. They operate behind the enemy's lines and must be able to drive all kinds of vehicles, including tanks and locomotives, operate signal equipment, and prepare demolition charges.

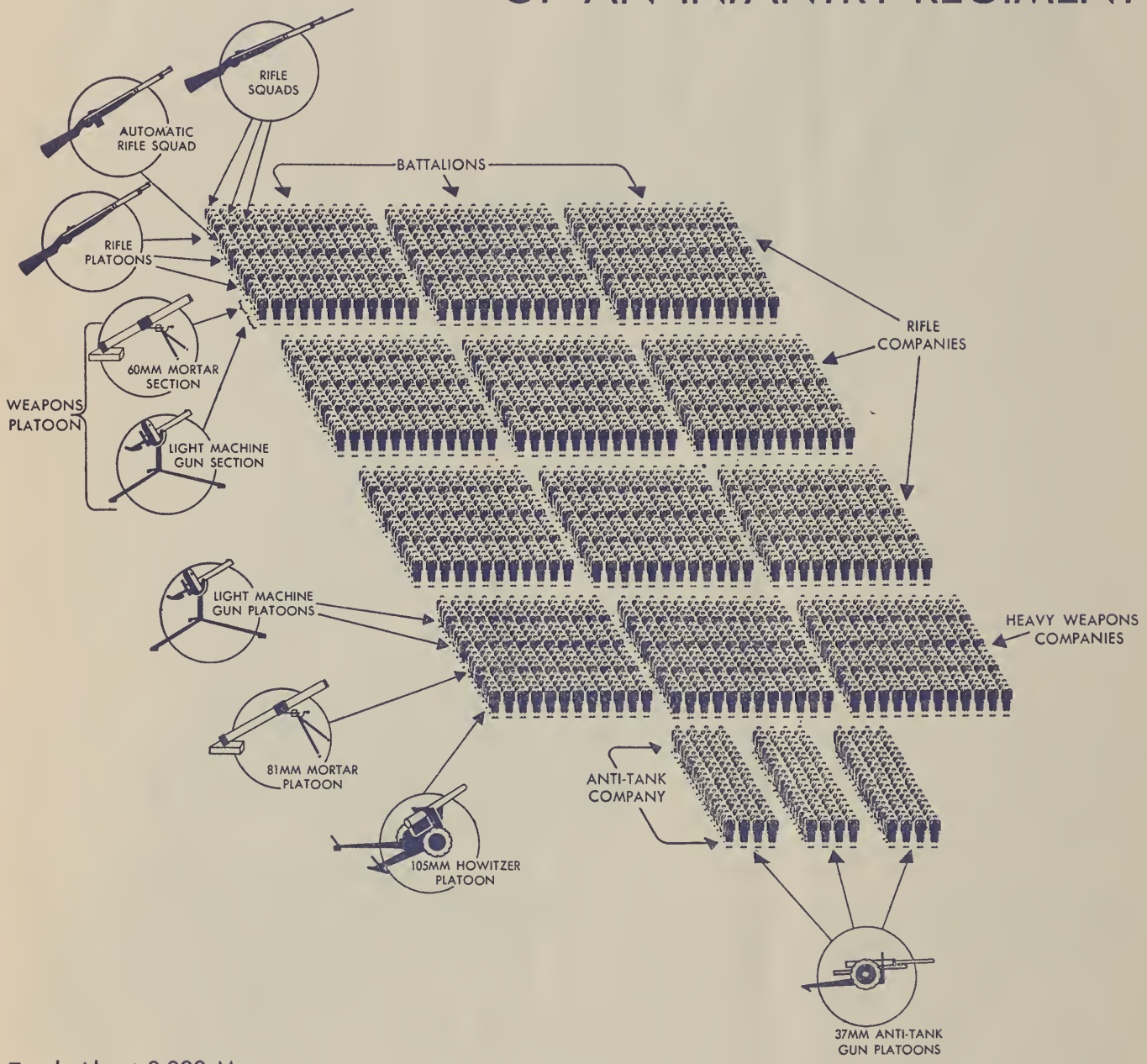
ORGANIZATION OF AN INFANTRY DIVISION



Total: About 15,000 Men
Commanded by a Major General

PICTOGRAPH CORPORATION

COMBAT ORGANIZATION OF AN INFANTRY REGIMENT



Total: About 3,000 Men

Commanded by a Colonel

(Table does not show supply Command and Administration units)

PICTOGRAPH CORPORATION

Parachutists usually are the advance guard of the air-borne infantry, which reaches its objective in transport planes and gliders, then disembarks to fight. The job of the air-borne troops is to seize landing fields, beachheads, and strong points; sever lines of communication; and destroy vital enemy installations.

ARMORED COMMAND

The Armored Command is not technically an arm of the Army, like the Infantry and Cavalry. Actually, it is a tactical unit, but its primary purpose is its use as an arm.

All the elements of the armored command are built around the striking echelon and its principal weapon, the tank. All tactics are intent on maneuvering the striking echelon into position from which it can deliver the decisive blow. Before an armored unit goes into action, reconnaissance units seek out a soft spot in the enemy line, which is further softened by machine-gun and artillery fire and bombardment aviation. Then masses of tanks are driven through, not at limited objectives but deep into rear areas, to paralyze the very heart of enemy resistance. The tanks are followed up by all available troops of other arms, to complete the knockout blow.

The two principal U. S. tank types are the light (14 tons) and the medium (30 tons). Some of them have a top speed of 50 miles per hour, and an armored division can move 150 miles in enemy territory day after day. All tanks carry machine guns and other weapons ranging from 37-mm. guns up. The new M-4 medium tanks, which have performed so splendidly in North Africa, mount high-velocity 75-mm. guns. Other types of armored-force vehicles are motorcycles, armored scout cars, half-track carriers and movers, and trucks.

In no other component of the Army are enlisted men charged with heavier responsibilities of command, operation, and maintenance than in the armored command. More than 50 percent of them are highly skilled specialists, and at least seven months are required for preliminary training alone.

FIELD ARTILLERY

The Field Artillery's insignia is crossed cannon; its color is scarlet. The field artillery's basic administrative and tactical unit, the battery, corresponds to the infantry company. Next largest unit is the battalion.

Field artillery has two principal combat missions. The first is to support infantry, cavalry, or armored forces by firing on those targets most dangerous to them. The second is to give depth to combat by counter battery fire and by firing on enemy reserves, communications, and command agencies.

Use of bombardment aviation for direct support of ground troops has not lessened the utility of field artillery. That portion of the battle area beyond the range of effective, observed artillery fire belongs to bombardment aviation. But for support of a land force on the field of battle at a definite place and time, artillery fire is superior. Remaining in one place, artillery can fire constantly, and is less affected by darkness and bad weather.

Artillery, generally speaking, is of two types: rifles and howitzers. A howitzer has a relatively short barrel and is capable of high-angle fire, dropping projectiles into trenches, behind hills or fortifications. Howitzer fire has less penetrating power and shorter range than a rifle—which has a flat trajectory—of the same weight, but its projectiles are heavier.

COAST ARTILLERY

The Coast Artillery insignia is crossed cannons with a superimposed projectile; its color is scarlet. The Coast Artillery operates fixed defensive batteries along the U. S. coast line; it also has mobile railway guns which, though designed for harbor and coast-defense work, may be used as heavy field artillery under certain conditions.

Coast-artillery heavy weapons range up to 16-inch guns.

ANTIAIRCRAFT COMMAND

Wearing the same insignia as the Coast Artillery, the Antiaircraft Command trains the various types of antiaircraft artillery battalions, barrage balloon units, and searchlight units. The standard antiaircraft weapon has been the three-inch (about 76-mm.) gun, now generally replaced by the more powerful 90-mm. gun. A battery of four "90's" can fire 100 aimed shots a minute, and need not score a direct hit to destroy an aircraft. Nearly all antiaircraft guns are motorized, and an antiaircraft regiment is capable of moving 300 miles a day.

Antiaircraft includes searchlights of 800 million candlepower, sound locators, and gun directors—"mechanical brains" which automatically compute the firing data for aiming the guns.

CAVALRY

The U. S. Cavalry's insignia is crossed sabers; its color is yellow. The cavalry's modern function is to combine great fire power with high mobility and independence of bases and lines of communications, particularly in rough country.

The cavalry combines both horse and motorized troops and equipment. It has developed means of transporting horse units by truck where distances and speed are important. The weapons it uses are generally those of the infantry. The basic cavalry unit is the troop, corresponding to the infantry company. Detached cavalry units of various types are used for infantry and armored-force reconnaissance.

ENGINEERS

Insignia of the Corps of Engineers is a castle; its colors are scarlet with white. The engineers' job is to build, repair, and maintain buildings, bridges, and military structures of every kind. They construct fortifications for the troops and blow up enemy installations. They operate railways and power systems, make surveys and maps. To do these jobs, engineer units are distributed throughout the Army. The corps now operates as one of the Army Service Forces.

SIGNAL CORPS

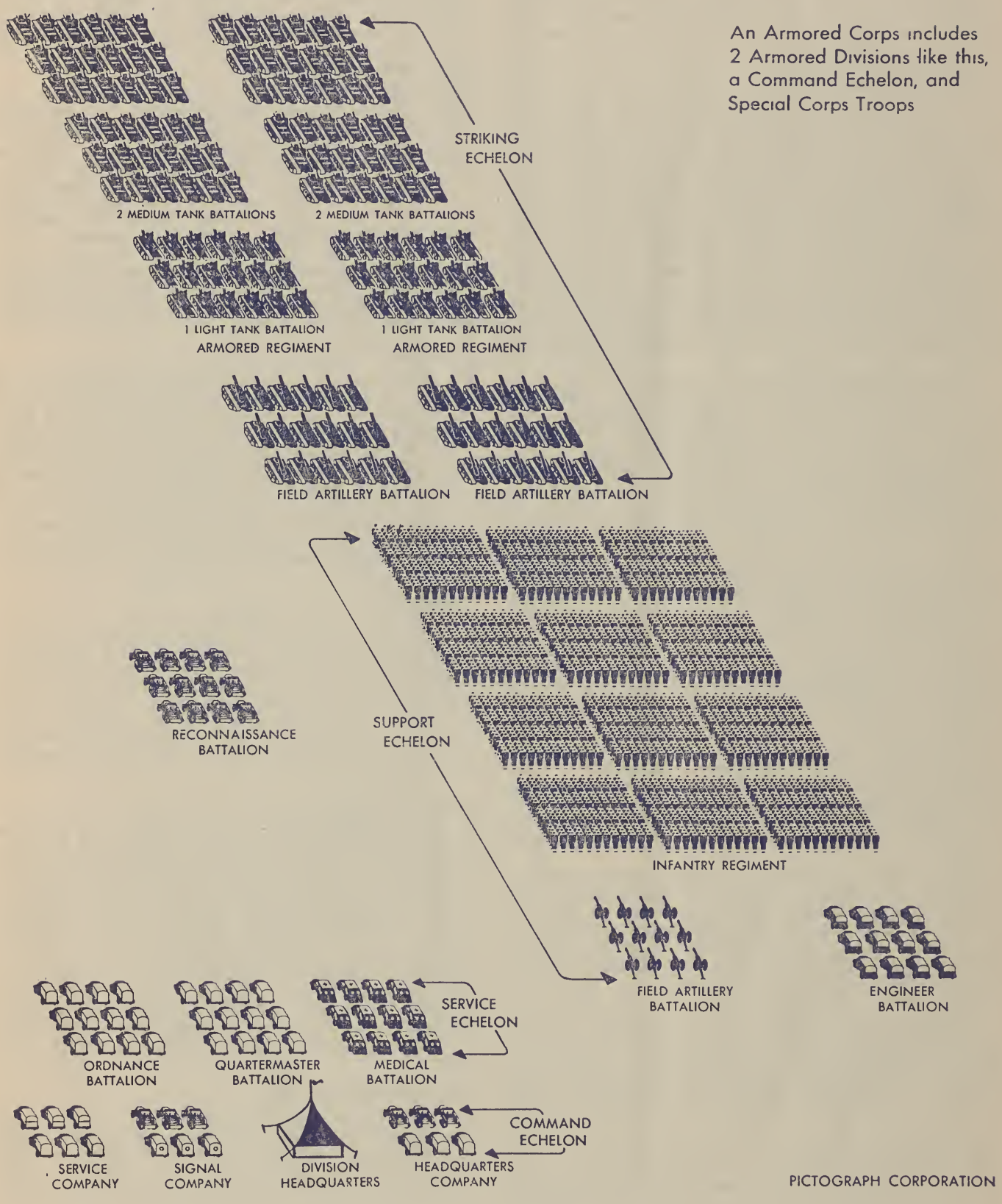
The Signal Corps insignia is crossed flags and a torch; its colors are orange with white. The corps is, like the Corps of Engineers, a component of the Army Service Forces.

Signal units are present in all Army organizations to provide communications. Telephone, teletype, and telegraph services are highly important, despite the increasing use of radio. Semaphore signaling has a new lease on life in antitank defense. Radio has hundreds of uses, and the corps has developed the "walkie-talkie"—a compact, portable radio receiver and transmitter which can be carried with ease by one man. Special Signal Corps troops include intelligence, photographic, and pigeon units. Aircraft-warning needs have introduced a whole new field of operations.

THE FIGHTING TEAM

The Army Ground Forces' fighting team is the division, a self-sufficient unit drawing on many arms and services for its personnel and equipment. The U. S. Army has three main kinds of divisions: infantry, armored, and cavalry. Two or more divisions, plus supplemental troops (corps troops),

ORGANIZATION OF AN ARMORED DIVISION



form an army corps. Two or more corps, plus supplemental troops (army troops), form a field army.

At the end of 1942, almost half the 5,000,000 U. S. soldiers were in the Air Forces and the Army Service Forces. Another million were busy with the process of expansion: troops in training; troops used for instruction; service and medical troops, etc.; personnel of officer-candidate and specialist schools. The balance were the fighting troops—70-odd divisions of them. New divisions were fast being activated. The training period for a new division has been reduced to about a year, far less than would be required if the entire division were green. The method so successfully in use is to split off a cadre of some 1,300 trained troops from an older division about which the new one is created. Thus, to an extent, the new division trains itself.

The modern infantry division (see chart) is called a "triangular" division because its basis is three regiments of infantry instead of four, as in the old "square" division. The armored division (see chart) resembles the infantry division, with the addition of more than 100 light and medium tanks, quantities of howitzers on self-propelled mounts as tank destroyers, a large number of 37-mm. antitank guns, and additional motor transport. There are also air-borne and mountain infantry divisions.

The cavalry division is a "square" division of four regiments. It includes more than 12,000 men, nearly 8,000 horses, and 1,250 motor vehicles.

AIR FORCES

The Air Forces insignia is wings crossed with a propeller blade; their colors are ultramarine blue with golden orange. Of the 8,200,000 men who will be in the Army by the end of 1943, some 2,200,000 will be in the Air Forces, the measure of the expansion this arm is undergoing. The training alone of the flying and ground personnel for the Air Forces is an enormous job. There are officer pilots, navigators, bombardiers, engineer officers, communications officers, armament officers, photographic officers, observers, and meteorologists. There are enlisted engine, radio, and plane mechanics, weathermen, parachute riggers, instrument repairmen, armorers, metal workers, welders, electricians, navigators, observers, bombardiers, and specialists of many other kinds. The plants themselves are classified as training, observation, fighter, bombardment, liaison, or transport.

Training planes include primary, basic, and advanced types, progressing from slow, easily handled ships to those approaching the performance characteristic of combat types. There are special advanced trainers for navigation, gunnery, and bombardment instruction.

Observation planes, "the eyes of the Army," are of various types, used to photograph objectives and report results of action.

Fighter planes generally are defensive. They intercept and prevent enemy aircraft from reaching their objectives. They escort other friendly craft for protection in execution of their missions. They are also used offensively in cooperation with ground forces to attack enemy troops in the open, enemy communications, and advance positions. Their general characteristics are high speed, maneuverability, heavy fire power. There is, however, no all-purpose fighter plane. To gain qualities making a plane a top performer in one respect, the designer must sacrifice something else.

The Curtiss P-40E (Kittyhawk) and P-40F (Warhawk) have heavy hitting power, excellent armor, high diving speed, and, like all U. S. planes, self-sealing gas tanks. They are single seaters. The E model is powered with the American Allison liquid-cooled engine; the F model, with an American-built, British-designed Rolls Royce liquid-cooled engine. Principal drawback of these planes is that their high performance is limited to relatively low altitudes.

The Bell P-39 (Airacobra), an Allison-powered single seater, has roughly the same characteristics as the P-40. It is armed with a cannon as well as machine guns. Radical design mounts the engine behind the pilot and gives him unusually good visibility.

One of the fastest planes in the world, which has been brilliantly successful as an Army scout, is the North American P-51 (Mustang), another Allison-powered single seater. A new model of the Mustang powered with an improved Merlin engine has superior performance at all altitudes.

The Lockheed P-38 (Lightning) is a single seater powered by twin Allisons which are turbosupercharged, bringing maximum performance at high altitudes. It has great fire power and a longer range than any other fighter in the world today. It has also proved devastating as a light bomber and low-flying attack plane.

The Republic P-47 (Thunderbolt) is a big new single seater powered with a Pratt and Whitney air-cooled engine of 2,000 horsepower. It, too, is turbosupercharged—designed especially for high-altitude performance. This plane is faster than the P-38 at extreme altitudes.

Bombardment planes are the characteristic weapons of strategic air power, capable of striking far behind the lines at the enemy's capacity to carry on the war. They are divided, roughly, into light, medium, and heavy types, according to weight of bomb load carried.

U. S. heavy bombers are the Boeing B-17 (Flying Fortress) and Consolidated B-24 (Liberator). They are both four-engined (air-cooled), and carry large crews. They are designed primarily for day bombing. As a result, they have to be fast, heavily armored, and armed for defense against enemy fighters. (Night bombers, less subject to fighter attack, save weight which these planes carry in engine power, armor, and guns, and thus can haul heavier bomb loads.) The B-17 and B-24 operate at very high altitudes, can outspeed anything but a first-class fighter plane, are rugged enough to take an incredible amount of pounding and still fly home, and are armed with the heaviest batteries of .50-caliber machine guns ever put into an airplane. Even more powerful and more heavily armed bombers which will dwarf the present models are now in production.

Medium and light bombers in general are designed for lower altitudes and shorter ranges. The smaller, more maneuverable types are often used for low-flying attacks against enemy troop concentrations and other targets, and even as night fighter planes.

U. S. medium bombers, the North American B-25 (Mitchell) and Martin B-26 (Marauder) are powered by twin air-cooled engines, are extremely fast, have long range and good load-carrying ability.

The Douglas A-20 (Havoc), two-engined (air-cooled), is a light (or attack) bomber of flexible characteristics and good all-around performance. The Douglas A-24 (Dauntless), a dive bomber with a single air-cooled engine, is as good as any single-engined dive bomber now in service.

Liaison aircraft are used for reconnaissance close to the front lines. They are slow, because a high-speed plane cannot take off from the small, improvised landing fields these ships must use. The U. S. Air Forces have a variety of these planes, nearly all of very high quality.

Transport planes are personnel and cargo carriers. The Air Forces are adding transport planes as fast as they can be turned out, including numbers of the highly efficient C-46 two-engined Curtiss (Commando) and C-54 four-engined Douglas (Skymaster). In addition to carrying parachutists and air-borne infantry, they are used to maintain far-flung communication lines throughout the world, and the job the Air Transport Command is doing in this respect is one of the high spots of U. S. organization for war. Army transport planes, built by Douglas, Curtiss, and Lockheed, in

general are similar to planes in use by U. S. air lines.

The Air Forces are sending more and better planes into combat every week. So far, their performance has been good. Just how good, these figures indicate: U. S. Army planes lost, in all theaters of war, in the first six months of 1943: 846. Enemy planes shot down (not including those damaged or probably shot down) by U. S. forces in the same period: 3,515.

* * *

NAVY

Japan's attack on Pearl Harbor, December 7, 1941, put the U. S. Navy on the defensive. The best the American air, surface, and submarine forces could do at first was to maintain a constant attrition of the enemy's advance units and steadily lengthening supply lines. But this defensive increased in strength until, in May 1942, it was able to make the Japanese Navy turn tail in the battle of the Coral Sea. In June, in the battle of Midway Island, it stopped the enemy in his tracks a second time. In August, the U. S. Navy launched its first offensive when the Marines seized the Japanese airdrome on Guadalcanal Island in the Solomons. On the other side of the world, in the Mediterranean theater, the Navy took the initiative again on November 7, 1942, when it covered the Army's occupation of French North Africa in conjunction with British naval and air units. At this writing its most recent success was the part it played in the Allied conquest of Sicily and the landing of U. S. troops in Italy.

In addition, the Navy has participated in convoy duty to United Nations ports from Murmansk to Sydney; it has manned the long arc from Australia to Alaska; it has cut down the threat of the German U-boat in the Atlantic. At first, it was called upon to fight a seven-ocean war with little more than a one-ocean fleet. But the Navy has grown as it fought. Today it is stronger than ever, in action constantly, and playing an increasingly important role in the winning of the war.

BATTLE OF THE CORAL SEA

The battle of the Coral Sea was the first to be fought at long range by carriers. It was the first sea battle in history to be fought by air power alone. It was the first defeat suffered by the Japanese Navy.

Actually, the battle was a series of scattered air actions. Early in May 1942, a Japanese fleet was moving southeastward to establish bases in the Louisiade and Solomon Islands along the fringes of the Coral Sea. Their objective may have been the Allied advance base at Port Moresby on the opposite coast of New Guinea, or they may have had a more far-reaching operation in mind. At any rate, as the Japanese moved south, a U. S. naval task force, including two carriers, steamed north to meet them.

The opposing fleets never came closer than 180 miles of each other. Instead, they sent planes to sink each other's ships. The action began May 4 and ended May 8. During the interval the U. S. lost the carrier Lexington. The Japanese lost 37 ships sunk or damaged—including a heavy cruiser and two carriers.

BATTLE OF MIDWAY

Following this defeat the Japanese naval forces withdrew from the Coral Sea. Expecting their next move would be toward Pearl Harbor, Dutch Harbor, or both, the U. S. Pacific Fleet was ordered into the area between Midway Island and the Aleutians.

On June 3, 1942, U. S. naval flying boats spotted the Japanese some 700 miles west of Midway, moving eastward in several columns. The enemy force numbered about 80 ships, including four carriers and three battleships.

The next morning, the Japanese and the land-based planes from Midway attacked simultaneously. The U. S. planes damaged ten ships of the main Japanese striking force, then 150 miles off the island. The Japanese carrier-based planes had less success. They caught no U. S. planes on the ground at Midway, and lost 40 of their own planes to Midway's fighters and antiaircraft defenses.

Turned back, the Japanese main force made off northwest. Planes from U. S. carriers pursued it for two days, doing enormous damage. Contact was finally lost due to bad weather.

Altogether, in addition to their heavy losses in ships—four carriers, two heavy cruisers, three destroyers, and a supply ship, all sunk—the Japanese lost 4,800 officers and men and 275 planes. U. S. losses were 307 officers and men, an unstated number of planes, the carrier Yorktown, and one destroyer.

This was the decisive battle of Midway Island. While it was fought, the Japanese were also raiding the U. S. naval base at Dutch Harbor, in the Aleutians, 1,651 miles to the north. This raid apparently was intended to cover the Japanese seizure of Kiska Island, near the end of the long Aleutian chain. At first the U. S. command in Alaska made no serious attempt to blast the Japanese from Kiska or near-by Attu. But Attu has since been retaken by land, sea, and air forces, and Kiska was recaptured on August 15 without a fight. Evidently the Japanese had been bombed out. At any rate, they had retreated under cover of fog, and the shortest route to Tokyo is now firmly in U. S. hands.

BATTLES OF GUADALCANAL

Meanwhile, in the Southwest Pacific, the Japanese were developing a strong naval base at Tulagi Harbor, and building an airport on neighboring Guadalcanal. This airport would give their land-based bombers a long reach down toward New Caledonia and the vital supply line to Australia. The Coral Sea had checked them, but only bayonets could hold them. Accordingly, on August 7, 1942, a strong force of U. S. Marines was put ashore in a surprise attack on Tulagi and the Guadalcanal airport.

Tulagi was in U. S. possession before nightfall and the Lunga Bay area on the north shore of Guadalcanal fell also the following day. The Japanese fled to the interior, abandoning the airport virtually intact. But the Japanese determined to regain their losses. The savage fighting which followed made a little Verdun of that steaming malarial island.

For several months the land battles on Guadalcanal raged ceaselessly. Finally it became clear that without large reinforcements the Japanese could not continue.

Therefore they sent a large convoy down from the north under powerful protection. Its naval spearhead reached the Guadalcanal area shortly after midnight of November 12-13, 1942 and was furiously attacked by U. S. naval forces. American bombers took up the attack at dawn and for three days the battle continued.

When it was over, U. S. losses aggregated two cruisers and seven destroyers; Japanese losses totaled two battleships, eight cruisers, six destroyers, and twelve transports. Japanese losses in men could hardly have been less than 25,000.

The remnant of the Japanese forces ashore was badly beaten. The U. S. Army troops took over from the victorious Marines, and by February 10, 1943, Guadalcanal was quiet.

Meanwhile, the Japanese had met an equally decisive defeat by Allied army forces on New Guinea. These two reverses together threw the enemy back to the west and the defensive.

BATTLE OF THE BISMARCK SEA

Mention should be made here of another Pacific battle which, though not a U. S. naval engagement, affected seriously the course of the naval war in the Pacific. The Japanese were still far up the coast of New Guinea, at Lae and Salamaua, where Port Moresby's bombers visited them almost daily. A convoy of twelve transports, strongly guarded by ten warships, tried to reach this area on March 2, 1943. Allied bombers from Port Moresby, escorted by fighters, met it off the New Guinea coast. The whole convoy and all its escort, with an estimated 15,000 men, was sent to the bottom. In addition, the Japanese lost 102 planes—all this at a total cost of one U. S. bomber and four fighters.

MUNDA, LAE, AND SALAMAUA TAKEN

By the early summer of 1943, the U. S. command was ready to strike again. On June 30, the Americans struck in the Munda area of the central Solomons at the eastern end of the Japanese front, at the Woodlark and Trobriand islands in the center, and in the Lae-Salamaua area of New Guinea at the western end. The Woodlark and Trobriand groups were occupied peacefully, for the Japanese had not garrisoned them. The Munda airfield was occupied on August 5, after severe jungle fighting. Salamaua was taken on September 14 and Lae on September 18. In all three exploits the Navy worked closely with the ground forces, not only assisting in the transport of troops but supporting land operations with air and sea bombardment.

CONQUEST OF SICILY

In the Sicilian campaign, nearly 3,266 United Nations vessels, ranging from battleships to small landing craft and including many merchantmen, took part. They flew the flags of Great Britain, the United States, India, the Netherlands, Poland, Greece. About 1,500 of these vessels were American.

The Sicilian campaign was truly a combined operation, the greatest amphibian expedition ever undertaken. Warships opened fire on the Sicilian coastal defenses before dawn on July 10, 1943, coordinating with a heavy attack from the air. The number of ships lost by the Allies was negligible, and the success of the initial landing was quickly assured. From then on, the Allied navies had two general tasks. One was to assume responsibility for the continuous flow of men and supplies into Sicily from Africa. The other was to support the ground operations of the troops by continuous shelling of Italian towns, enemy ammunition dumps, communication lines, and other objectives.

Messina was finally occupied on August 17, 1943, and the conquest of Sicily by the United Nations was complete. In the final phase of the campaign, the combined navies assumed a third mission: to make escape of the Axis armies from Sicily as difficult as possible by sea patrol off the narrow Strait of Messina and by bombardment of the Italian mainland just two miles away.

LANDING IN ITALY

When U. S. forces made their first landing on the Italian mainland, September 9, 1943, they did so under cover of heavy shelling from U. S. and British warships, which had convoyed the troops to the attack from Sicily and North Africa.

BATTLE OF THE WESTERN ATLANTIC

When the United States entered the war in December 1941, the American east coast from Maine to Florida was brought under a single naval command, known as the Eastern Sea Frontier, in anticipation of large-scale U-boat attacks on coastal shipping. As has sometimes happened in American naval wars before, the new command had very few weapons in its armory. German U-boats made a happy hunting ground of American coastal waters. In the first six months of 1942, sinkings reached a total of 327. By June 1942, however, the Eastern Sea Frontier command had acquired the weapons it needed, and had built up a strong anti-submarine organization along its 1,500 miles of U. S. coast. The submarine chaser, the trawler, the blimp, the plane, and the convoy system were then in firm control, and sinkings had decreased. On May 14 the convoy system was put into operation along the coast, forcing the U-boats south into the Caribbean. By July 1, 1942, the Caribbean command was sufficiently equipped to make a beginning of Caribbean convoys, and the U-boats were forced out to the mid-Atlantic and south to the waters off the bulge of Brazil.

By the spring of 1943, the Navy's war against the U-boat was almost completely offensive, and during May and June the Germans lost an average of one submarine a day.

HISTORY OF THE U. S. NAVY

Two frigates and two armed brigs, commissioned as the Continental Navy in December 1775, were the genesis of the present U. S. Navy. Ten years later Congress, debt-ridden and with an empty treasury, thriftily auctioned off the last of its ships, and when Barbary pirates began raiding U. S. merchantmen, the Americans had no means of defending their expanding commerce. In 1794 Congress, stung into action, passed the act which produced the world-famous frigates Constitution, United States, and Constellation.

The Navy first put an end to privateers in the West Indies, then to the Barbary pirates. After that the Navy was forgotten again. But the American merchant marine was rapidly enlarging. It sought its cargoes in all parts of the world: furniture, clothing, cloth, and machinery in Europe; coffee, rum, sugar, molasses, and mahogany in West Indies ports; tea, spices, rice, silk, camphor, bêche-de-mer (sea cucumber), calicoes, muslins, and nankeens in Far Eastern ports. John Fitch tried out his first steamboat on the Delaware River in 1787, and in 1807, on the Hudson River, Robert Fulton's Clermont proved to be the first commercially successful steamboat. Despite steamships, America's great fleet of full-rigged clippers was still to lead the world into the Golden Age of Sail.

In due time the U. S. Navy expanded its reach into every part of the world with which American merchantmen were trading. Such historic sayings as Lawrence's "Don't give up the ship" and Perry's "We have met the enemy and they are ours . . ." (see *Famous Naval Sayings*, at end of chapter) added to the Navy's high sense of tradition and esprit de corps. Naval captains came to have considerable diplomatic responsibility, as in Commodore Perry's opening up of Japan. The Navy's influence in exploration and research made itself felt in every branch of science affecting geography and navigation. No other nineteenth-century naval officer rendered a greater scientific service to the world's seamen than Commander M. F. Maury, whose charts of

weather and currents are still published by the Navy's Hydrographic Office with constant revisions that keep them up to date. Later Rear Admiral A. T. Mahan, scholar and historian as well as professional naval officer, was to illuminate the subject of sea power for students of naval warfare in Europe as well as America.

When the American Civil War broke out, the Navy was, as in the past, unprepared. A period of frantic preparation elapsed before it was equal to its responsibilities. Ships and personnel expanded rapidly. The old wooden Navy faced its first ironclads. On March 8, 1862, the Confederate steamer Merrimac, armored with four inches of iron supported by 22 inches of wood, rammed and sank the wooden Cumberland, set the old frigate Congress ablaze, and left three other Union ships aground. Next morning the Merrimac returned to resume its slaughter of wooden ships, only to be confronted by what looked like "an immense shingle floating on the water, with a gigantic cheese box rising from its center." It was the Union's new Monitor, armed with eight inches of iron on its turret and five inches on its hull. For three hours the two new ironclads hammered in vain at each other's armor. Though in itself indecisive, this famous battle restored the command of the sea to the Union. It did more than that, for all the wooden ships of the world's navies were rendered obsolete by that historic action in Hampton Roads, Virginia.

Once the Civil War was over, the U. S. Navy again stagnated. Interest in it did not revive until the 1880's, when the controversy over wood-and-iron ships versus steel ships was definitely decided. The "new Navy," built after 1881, had only steel ships. Between 1909 and 1917, 16 large battleships were ordered, though not all of them were completed in time to get into the last war, which was to bring the Navy its next major challenge.

When the United States entered the war, the Kaiser prophesied that no American soldier would ever reach France. The U-boats would take care of that. But the U. S. Navy, in conjunction with the British Navy, transported 2,084,000 soldiers and the Army's huge volume of stores to France without the loss of a single soldier due to enemy action—a feat which had never before been accomplished on so vast a scale. Only one transport was lost by enemy action, and that ship was traveling light in the westbound direction when it was hit. In addition, the Navy escorted convoys to Britain and the Mediterranean, laid the huge North Sea mine barrage between Scotland and Norway, and contributed a squadron of battleships to the British Grand Fleet. Before the war ended, the Navy's personnel had increased from a peacetime strength of 75,000 including Marines, to 600,000, including reserves in service.

Soon after the war ended, America initiated an attempt to stabilize peace through international limitation of armaments. As a result of the Washington Naval Conference of 1922, the U. S. Navy, then the greatest potential Navy in the world, sank, scrapped, or demilitarized 31 capital ships, totaling 767,880 tons. Another 331,109 tons of combat ships were scrapped or demilitarized after the London Naval Treaty of 1930. The Navy thus sacrificed a total of 1,098,989 tons of ships for peace.

But as time went on, it became increasingly evident that the sacrifice was in vain. When President Roosevelt took office in 1933, the nation awoke to the fact that it was approaching a renewed danger of war with the strength of a minor naval power. The country began at once to make up for lost time.

Between 1933 and 1940, 137 combat vessels, or nearly 500,000 tons of aircraft carriers, light and heavy cruisers, destroyers, and submarines were added to the Navy. When Hitler swept into France in 1940, America began rearming at top speed, and the "two-ocean" Navy was ordered at last.

Since 1940, Congress has appropriated the stupendous sum of over 94 billion dollars to the Navy. The Navy's construction program includes aircraft carriers, large and small, destroyer escort vessels (specifically designed for anti-submarine work in mid-ocean), submarine chasers, amphibian and other types of landing craft.

The building program has moved ahead with astounding speed. In May 1943, the Navy had 3,193 ships in service (including six new battleships of 35,000 tons or more), as compared with 907 in 1941, and expects to have 5,100 by July 1, 1944. In the year ending July 1, 1943, naval combat ship construction increased by more than six times over the first year of the new building program. And in the last six months of 1943 more new combat ships will be launched than were launched in the whole preceding twelve months.

By the summer of 1943 the Navy's total personnel, including Coast Guards and Marines, was 2,250,000. By 1944 it will reach nearly 3 million men and women.

TYPES OF NAVAL SHIPS AND PLANES

AIRCRAFT CARRIERS

Carriers are named after famous ships in the early history of the U. S. Navy, and after famous battles. The world's carrier-borne aviation began in the great American naval base at Hampton Roads, Virginia, more than 30 years ago. The first airplane to take off from a man-of-war in any navy was flown from the newly built 60-foot wooden platform on the bow of the American cruiser Birmingham, lying in Hampton Roads in November 1910. Its pilot was Eugene Ely, one of Glenn Curtiss' early aces. Two months later, Ely made a successful downwind landing on another wooden platform, 120 feet long this time and only 32 feet wide, which had been specially built on the battleship Pennsylvania—the first airplane landing on any man-of-war.

The construction of carriers for the U. S. Navy was recommended in 1915, but the war postponed action until 1922, when the Navy acquired its first "covered wagon" by converting the fleet collier Jupiter to the 11,000-ton carrier Langley, one of the first carriers in any navy. In 1927 the 33,000-ton carriers Lexington and Saratoga went into service. Both had been ordered in 1917 as 43,000-ton battle cruisers but had been scrapped as a result of the Washington Naval Treaty of 1922. The Navy's first built-for-the-purpose carrier was the 14,000-ton Ranger, commissioned in 1934. As war loomed closer, the American carrier-building program swelled to tremendous proportions, and was supplemented by the conversion of new merchant ships to auxiliary carriers.

The modern floating hangar crew runs to more than 2,000 including pilots. Its planes constitute its main defense.

BATTLESHIPS

Battleships are named after states. They are the lineal descendants of the heavy, lumbering ships-of-the-line which ruled the seas in the old days of wooden navies. Their ancestry is as old as navies. In this war as in the last, it is the battleship which, in the last analysis, is keeping open the lanes to England and keeping the grip of the sea blockade fastened on Germany. Battleships helped to cover the amphibious operation of occupying French North Africa. Wherever momentous decisions are in the making at sea, battleships, even though they lie unseen in the background, exert a powerful and sometimes decisive influence.

With 14 old battleships in service, the United States has

17 new battleships built, building, and authorized. These include two ships of the North Carolina, four of the South Dakota, six of the Iowa, and five of the Montana class. The North Carolinas are of 35,000 tons' displacement, and believed considerably faster than their rated 27 knots. Foreign sources credit them with 16 inches of belt armor and 10-inch decks.

Battleships of the Iowa class are reported to be battle-cruiser versions of the North Carolina design, with similar armament and even heavier protection. Speeds exceeding 35 knots have been rumored. The five super-ships of the Montana class are credited with displacements ranging up to 58,000 tons and will probably be the world's largest battleships. They will be built in huge graving docks and floated when nearly complete.

Battleships carry observation planes whose primary purpose is to spot for the major caliber guns.

CRUISERS

Cruisers, generally named for cities, descend from the frigates of the old wooden-ship era. The frigate was a faster and lighter type than the ship-of-the-line. It mounted from 25 to 65 guns on its spar deck and one gun deck below, while the ship-of-the-line carried from 75 to 125 guns on the spar deck and two decks below. The famous old Constitution and Constellation, launched in 1797 and still preserved, are both frigates.

Up to 1941, American cruisers were divided into two classes, heavy cruisers and light cruisers. The former were second in combat strength to the battleships, while the latter sacrificed armor and armament to speed. Since 1941 both classes have been listed in one category. At present the cruiser category ranges from the 6,000-ton Atlanta class up to the mystery ships of the Alaska class, officially described as "large cruisers." Most of the 6-inch-gunned light cruisers operate with the battleships. The 8-inch-gunned vessels are attached to the scouting force. Others serve as flagships of destroyer and submarine formations. Their planes, similar in type to those used for spotting by battleships, are organized into scouting groups, though they can also be used for light bomb and machine-gun attacks. As they must be able to land on the sea in order to be picked up and returned on board, they are either seaplanes or amphibians.

DESTROYERS

Destroyers are named after officers, enlisted men, and civilians who have rendered distinguished service to the Navy. Destroyers are inscribed with their official numbers rather than their names. Every ship in the Navy has an official number, which is preceded by letters indicating the category to which the ship belongs. The battleship Texas, for example, is officially known as BB-35, but its name, rather than its official designation, is inscribed on its stern. Carriers and cruisers follow the same practice, but not destroyers. The destroyer Russell, for example, is officially designated as DD-414, but its only identifying mark is the number 414 painted near its bow.

The U. S. Navy's first steel torpedo boat was the Cushing, built soon after 1886. The modern destroyer has evolved from that, though its name comes from the old torpedo-boat destroyer which relied on its guns for its effectiveness against torpedo boats. In modern destroyers, the guns are for defense and are less important than depth charges, used for defense against submarines. The destroyer's primary weapon of attack is the torpedo. It sacrifices everything else to high speed in launching its torpedo attack. Having no armor, it is truly described as a "tin can," for its steel skin is only ⅜ of an inch thick. Excepting motor torpedo boats, destroyers are the fastest ships in the Navy.

Modern American destroyers range up to 2,100 tons. Some types are equipped to fire the heaviest torpedo salvo in any navy. One of the outstanding events which foreshadowed United Nations cooperation was the transfer of fifty 1,200-ton American destroyers to the British Navy in September 1940, in exchange for base rights in British possessions extending from Newfoundland to British Guiana.

SUBMARINES

Named after fish and other aquatic animals, submarines are officially designated by the letters SS, followed by the number of the individual ship. They used also to be divided into classes by the use of single letters from A to T, but the newer submarines bear only their official numbers painted on the bows and conning towers.

The first submarine actually used in warfare was the one-man oar-propelled Turtle, invented by an American, David Bushnell of Connecticut, in 1776. The Turtle was used in an attempt to sink the man-of-war Eagle in New York Harbor by affixing a gunpowder charge to its hull with screws, but the screws could not be driven through the copper sheathing. First submarine to sink a man-of-war was a Confederate craft, with a spar torpedo attached to its bow, which sank the Union blockader Housatonic off Charleston, South Carolina, on February 17, 1864. Then, however, water poured into the submarine through an open hatch and drowned its crew of nine. The modern submarine developed from boats built in the United States by John P. Holland in 1875 and after, with further research by Simon Lake. The U. S. Navy invited submarine designs in 1888, and finally bought the submarine Holland—54 feet in length and seven knots speed, manned by a crew of six—on April 11, 1900.

Of the present large and powerful force of U. S. submarines, a few older ships range as high as 2,730 tons' surface displacement, which, as far as is known, makes them the largest submarines now in service. Official descriptions of the newer ships are not released, but they are believed not to run above 1,525 tons. Long-range service in the Pacific requires much larger submarines than the 500- and 700-ton U-boats which the Nazis use in the Atlantic.

PATROL CRAFT

Patrol craft include gunboats, motor torpedo boats, and the submarine chasers. Large gunboats are named for small cities, and river gunboats for islands. Motor torpedo boats and submarine chasers are known by their official designations—PT for torpedo boats and PC for chasers—followed in each case by the identifying number of the individual boat.

With destroyers assuming more and more the character of light cruisers, motor torpedo boats have taken over some of the functions of the old torpedo boats. The types which now form the "mosquito fleet" are the fastest boats in the Navy—small eggshell speedsters which can roar in to their targets at top speed, blow a hole in the most powerful ship afloat, and roar out again, zigzagging as they go. The achievements of MTB Squadron 3, commanded by Commander John Bulkeley, U. S. N., in the Philippines, have already won a place in American naval tradition. They blew up a Japanese cruiser, an auxiliary cruiser, and a loaded transport off Bataan. Later, they took out several parties of key men, including General Douglas MacArthur and President Quezon, before Corregidor fell.

A number of converted yachts are now classed as PC boats, but the bulk of the PC's were built for the purpose. In length they range up to approximately half the length of a destroyer. Generally they trace from the wooden-hulled 110-footers which the last war produced, but this war has developed a number of new types.

MISCELLANEOUS

The fringes of the fleet include a wide variety of miscellaneous craft—minelayers; sweepers; tenders, large and small, to serve the patrol, destroyer, and submarine squadrons; transports; tankers; hospital ships; and a long train of repair, ammunition, and store ships, tugs, target vessels, and harbor craft. Many of the ocean-going non-combat ships were built by the Maritime Commission and are manned by naval reserves.

NAVAL AIRCRAFT

Though the airplane is an American invention, the Wright brothers never dreamed, when they first flew at Kitty Hawk in 1903, that the plane would one day be a powerful weapon of war. As already indicated, carrier-borne aviation was also of American birth, and dates from the winter of 1910-11. The Navy Department created its Bureau of Aeronautics in 1921, and the bureau has thus had more than 20 years in which to bring American carriers and carrier-based fighters, dive bombers, and torpedo planes to their present high degee of perfection.

The Vought-Sikorsky F4U (Corsair) is unquestionably the best carrier-based fighter in the U. S. Navy. It is in the 400 m.p.h. class. Its air-cooled engine develops 2,000 horsepower. With a range of more than 1,500 miles, it can accompany bombers considerably farther than most fighters. The Corsair has outflown and outfought the Japanese Zero in the South Pacific.

The Douglas SBD (Dauntless), the Navy's standard carrier-based dive bomber, ranks with the best. Dive bombing is an American invention, first used by the U. S. Marine Corps in 1919 and practiced by U. S. flyers since 1927, at first in fighter planes and carrier-based scouts. The first specially built dive bomber, the Curtiss F8C-4 (Helldiver), appeared in 1928, and since then constant experiment has enabled the Americans, led by the Navy's air arm, to produce a formidable succession of dive-bomber types, exceeding both in speed and bomb load the famous but slow German Stukas. The present Douglas SBD is merely the latest of this series, and like its predecessors, it will shortly be supplemented by a new design now in production.

The Douglas TBD (Devastator), the Navy's standard torpedo bomber, was as good as the best in service in any navy when the war began. Yet development already under way soon caught up with it, and it has been replaced by:

The Grumann TBF (Avenger), which made its battle debut at Midway. A bigger, more powerful, and in all respects more advanced airplane, the Avenger is considered the best carrier-based torpedo plane so far seen in action.

The Consolidated PB2Y, a shore-based patrol bomber, ranges up to 30 tons in gross weight and is the Navy's largest plane. It is capable of great range, thoroughly seaworthy, and sufficiently habitable to operate alone for long periods. It can be used for heavy bombing, but its primary purpose is that of patrolling, self-sustained and self-protected, at relatively great distances from its base ashore.

The Martin PBM, another big shore-based patrol bomber, ranges up to 20 tons in gross weight, and can sling two 21-inch torpedoes or several tons of bombs under its gulled wings.

The Navy has several types of training and transport planes, among them an amphibian transport plane, adapted from a commercial machine, which is used for a number of utility services.

The U. S. Navy is now the only navy to use lighter-than-air machines. Blimps have become an American specialty, not only because the United States has the non-inflammable helium gas with which to inflate them, but also because they can work only in skies free from enemy planes. Along the American coasts, blimps have proved so successful in hunting mines and submarines on the inshore patrol that their authorized strength has been increased.

WHO'S WHO IN THE NAVY

In November 1943, these men were in charge of the principal naval commands, afloat and ashore:

HIGH COMMAND

Admiral Ernest J. King, Chief of Naval Operations and Commander in Chief, United States Fleet.
Vice Admiral Frederick J. Horne, Vice Chief of Naval Operations.
Vice Admiral Richard S. Edwards, Chief of Staff to Commander in Chief of United States Fleet.
Vice Admiral Russell R. Waesche, Commandant, Coast Guard.
Lieutenant General Thomas B. Holcomb,* Commandant, Marine Corps.

PACIFIC OCEAN

Admiral Chester W. Nimitz, Commander in Chief, Pacific Fleet.
Admiral William F. Halsey, Jr., Commander, South Pacific Forces.
Vice Admiral John H. Towers, Commander, Air Force, Pacific Fleet.
Vice Admiral Arthur S. Carpender, Commander, Southwest Pacific Forces.
Vice Admiral Aubrey W. Fitch, Commander of Aircraft, South Pacific Forces.
Rear Admiral Francis W. Rockwell, Commander, Amphibious Forces, Pacific Fleet.
Rear Admiral J. F. Shafroth, Commander, U. S. Naval Forces, Southeast Pacific.

ATLANTIC OCEAN

Admiral Harold R. Stark, Commander, Naval Forces in Europe.
Admiral Royal E. Ingersoll, Commander in Chief, Atlantic Fleet.
Vice Admiral Jonas N. Ingram, Commander, South Atlantic Forces.
Vice Admiral Henry K. Hewitt, Commander, U. S. Naval Forces in the Mediterranean.
Rear Admiral Alan G. Kirk, Commander, Amphibious Forces, Atlantic Fleet.

AREA COMMANDERS

Vice Admiral Herbert F. Leary, Commander, Eastern Sea Frontier.
Vice Admiral John W. Greenslade, Commander, Western Sea Frontier, and Commandant, 12th Naval District.
Vice Admiral Frank J. Fletcher, Commander, Northwest Sea Frontier, and Commandant, 13th Naval District.
Vice Admiral Arthur B. Cook, Commander, Caribbean Sea Frontier, and Commandant, 10th Naval District.
Rear Admiral William R. Monroe, Commander, Gulf Sea Frontier, and Commandant, 7th Naval District.
Rear Admiral Clifford E. Van Hook, Commander, Panama Sea Frontier, and Commandant, 15th Naval District.
Vice Admiral Robert Lee Ghormley, Commander, Hawaiian Sea Frontier, and Commandant, 14th Naval District.

* As of January 1, 1944, Lieutenant General Alexander A. Vandegrift will succeed Lieutenant General Holcomb.

THE NAVY DEPARTMENT

The Navy Department administers the fighting fleets, the naval air force, the Marine Corps, and, in wartime only, the Coast Guard. It also maintains the U. S. Naval Academy at Annapolis, Maryland, to train naval officers; the Hydrographic Office to chart the seas and collect marine data; the Naval Observatory for accurately determining time and supplying astronomical data for navigation; and numerous Navy yards and shore stations.

Subordinate to the President as Commander in Chief, the Navy Department is directed by four civilians: the Secretary of the Navy, the Under Secretary, the Assistant Secretary, and the Assistant Secretary for Air. In addition to his general supervisory functions, the Secretary of the Navy is in direct charge of the Navy's petroleum reserves in the West and in Alaska, and through the Office of Island Government, manages Samoa. Adviser to the civil heads is the Chief of Naval Operations, an admiral, and Commander in Chief of the United States Fleet, who supervises all naval services not delegated to specific bureaus. The special bureaus, each in the charge of a naval officer of rear admiral's rank, are the Bureau of Naval Personnel, which includes the Naval Academy; the Bureau of Ships; the Bureau of Ordnance; the Bureau of Aeronautics; the Bureau of Yards and Docks; the Bureau of Supplies and Accounts; and the Bureau of Medicine and Surgery. Two officials, the Lieutenant General Commandant of the Marine Corps and the Judge Advocate General of the Navy are responsible directly to the Secretary.

BUREAU OF NAVAL PERSONNEL

Under Rear Admiral Randall Jacobs, this bureau is responsible for the procurement, education, training, discipline, promotion, and distribution of officers and enlisted personnel, except for those of the Medical Department. It also has charge of regulations regarding etiquette, and takes up questions of rewards and punishments, which it submits for the action of the Secretary of the Navy.

WAVES

For the second time in its history—the first time was in the last war—the Navy has opened some of its shore positions to women, in order to release men for sea and combat service. The new Women's Reserve of the U. S. Naval Reserve is popularly known as the WAVES—Women Appointed for Voluntary Emergency Service. Its officer-candidates are trained, many of them for communications work, at Northampton, Massachusetts, where three student dormitories, classrooms, and a playing field of Smith College have been turned over to them. They are also being trained at Hunter College, New York City. Age limits are 20 and 36. Officers wear a jacket of navy blue wool with brass buttons, light blue stripes on the sleeves to denote rank, and navy blue skirt. Enlisted women wear the same suit but with bone buttons and no stripes. Summer uniforms are in medium blue. Officers' dress uniforms are white. All ranks wear insignia of an anchor and propeller on the jacket collar. The director is Captain Mildred H. McAfee.

BUREAU OF SHIPS

Under Rear Admiral Edward L. Cochrane, U. S. N., this bureau is responsible for naval architecture and building, and conducts researches and tests at four laboratories and experiment stations.

BUREAU OF ORDNANCE

Under Rear Admiral W. H. P. Blandy, U. S. N., this bureau provides the Navy's guns, bombs, and torpedoes. Its permanent plants include a gun factory, powder factory, proving ground, three torpedo stations, a mine depot, two ordnance plants, and 11 ammunition depots.

BUREAU OF AERONAUTICS

Headed by Rear Admiral D. C. Ramsey, U. S. N., this bureau is responsible for the equipment of the Navy's air force. To insure constant improvement in planes, it cooperates with the National Advisory Committee for Aeronautics and the National Bureau of Standards. The bureau also makes recommendations regarding the choice and training of men.

Among the important Navy shore bases where this work is carried on are: the Air Station at Lakehurst, New Jersey, which trains men in handling lighter-than-air craft and in parachute work; the Naval Air Station at Anacostia, Maryland; the Air Station at Patuxent, Virginia, where flight tests are made preliminary to the acceptance of aircraft from manufacturers; the Air Station at Norfolk, Virginia, where East coast fleet aircraft are based for overhaul and testing; the Air Station at Pensacola, Florida, which both trains Navy aviators and overhauls aircraft; the Seattle Station which is a fleet patrol base; the San Diego Station, which is the main West coast base for fleet aircraft, providing for the maintenance, overhaul, spare parts, and general base facilities; and the Fleet Air Base at Pearl Harbor, Hawaii, which provides facilities mainly for patrol squadrons; and the base at Coco Solo, Canal Zone, which does the same.

BUREAU OF YARDS AND DOCKS

Under Rear Admiral Ben Moreell, U. S. N., this bureau designs and constructs shore works of every kind needed by the Navy and Marine Corps. It has designed and built the eight new Atlantic bases which were leased from Great Britain in 1940, in Newfoundland, Bermuda, the Bahamas, St. Lucia, Antigua, Trinidad, Jamaica, and British Guiana.

BUREAU OF SUPPLIES AND ACCOUNTS

Headed by the Paymaster General of the Navy, Rear Admiral W. B. Young, (S. C.) U. S. N., this bureau is responsible, among other things, for provisioning ships. When the old frigate Constitution went to sea in the late 1790's, the sailor's ration was a pound of bread and a half pint of rum a day. There is no wine-mess in American naval vessels today, and the modern sailor gets six and a quarter pounds of food a day. After the U. S. Army, the Navy's Bureau of Supplies is the farmer's biggest non-civilian customer.

BUREAU OF MEDICINE AND SURGERY

Headed by the Surgeon General of the Navy, Rear Admiral Ross T. McIntire, (M. C.) U. S. N., this bureau operates 16 hospitals, 11 on the eastern seaboard, one in the Middle West, three on the Pacific coast, and one in Hawaii. In peacetime one hospital ship is provided, and in war and peace medical and dental services are provided for every commissioned ship. Officers of the Medical Corps, commissioned from among graduates of top-ranking medical schools, are required to take an eight months' course in tropical medicine, shipboard life, and poison gases.

U. S. MARINE CORPS

Motto: Semper Fidelis

The Marine Corps was created on November 10, 1775, when the Continental Congress in Philadelphia authorized the establishment of two battalions of sea soldiers for service with the Continental Navy. In the 168 years since then, the Marines have acquired a fanatic pride in their Corps.

Crack Marine riflemen in the tops of the Bonhomme Richard helped John Paul Jones win glory in his battle with the Serapis in 1779, and the Marines are still the keenest rifle-shooting outfit in the world. They followed O'Bannon on the hellish 600-mile desert march to Deran in Tripoli in 1805; with Scott they stormed the heights of Chapultepec at Mexico City in 1847; and a Marine officer, resting after the battle in the ruins of Montezuma's palace, wrote the first verse of the Corps' hymn: "From the halls of Montezuma to the shores of Tripoli."

They take as a matter of course the sentence attributed to Richard Harding Davis in 1885: "The Marines have landed and the situation is well in hand." The report of Private Bill Anthony to his captain when the Maine blew up in Havana harbor is still a Marine Corps classic: "Sir, I have to report that the ship has been blown up and is sinking."

They fired the first American shot in the last war, a rifle bullet across the bow of a German cutter in Guam harbor. They have all but lost track of the number of times they have been "first to fight." At Belleau Wood in France, they helped to break the back of the last great German offensive in 1918, and Sergeant Dan Daly added another famous line to the classics of his Corps: "Come on, you ——— — ———, do you want to live forever?" Marines won nearly 2,500 battle honors in France, including 12 white-starred blue ribbons of the Congressional Medal of Honor, the highest American decoration for fighting men.

They were Marines who garrisoned Wake Island when the Japanese attacked at the beginning of this war. Hopelessly outnumbered, with no chance of relief, but killing Japanese to the end, their commander, Lieutenant Colonel J. P. S. Devereux, replied when headquarters asked what he needed, "Send us some more Japs." At Midway Island, Major Henderson of the Marines blew up a Japanese carrier by flying his plane "down the stack," and Captain Fleming, wounded twice in one day, went up again and dived his plane into a Japanese carrier's flight deck. They were Marines who seized the new Japanese airdrome on Guadalcanal in the Solomon Islands on August 7.

Their reputation is that of "the fightin'est men on earth," and every Marine lives up to it. Marines are always volunteers. They are picked men, and there is never any lack of applicants to pick from. In peacetime the Corps turns away four-fifths of its applicants. Even in wartime, it still picks and chooses its recruits. At its training stations at Parris Island, South Carolina, and San Diego, California, non-commissioned officers in starched khaki teach the rookies how to look, act, and think like Marines; harden and toughen them into the traditions of the Corps. The spit-and-polish traditions of the Corps become the rookie's second nature. So do the tricks of rough-and-tumble fighting which have made "devil dogs" a synonym for the Marines.

Although an integral part of the Navy, the Marines are essentially a soldier outfit. In normal times, the Corps consisted of approximately 1,500 officers and 38,000 men. In the last war its total strength rose to 75,000, and in this war, by midsummer of 1943, it was 315,200 and still growing.

The Corps has a small aviation force which uses the same types of fighters and dive bombers as the Navy uses, and a type of transport plane fitted for the use of parachutists. It has two aviation bases ashore, one in the Marine barracks at Quantico, Virginia, the other at the Naval Air Station at San Diego, California, where it operates with the carrier divisions of the battle force.

WOMEN'S RESERVE

Early in 1943, a U. S. Marine Corps Women's Reserve was established. The Reserve enrolls women as officers and enlisted personnel, to serve at Marine training centers and posts within the continental United States. The ultimate size of the Reserve will be 18,000 enlisted women and 1,000 officers. About 9,000 will be assigned to the aviation ground force.

U. S. COAST GUARD

Motto: Semper Paratus

The Coast Guard, normally a force of sea-police operating under the Treasury Department, is mustered into the Navy in time of war. Its uniforms are identical with Navy uniforms, except for the small shield of the Treasury Department worn as insignia on the sleeve. It has had a continuous history dating from the passage of the first tariff act on August 4, 1790, when Congress authorized the establishment of the Revenue Marine, consisting originally of six small, fast, armed, sailing cutters, for the suppression of smuggling.

It served as part of the Navy during the quasi-war against West Indies privateers in 1798-1800. Since then the old Revenue Marine, later the Revenue Cutter Service, has fought as part of the Navy in every American war at sea, except the war (1801-05) against the Barbary pirates in the Mediterranean.

The old Revenue Cutter Service and the Life Saving Service were amalgamated in 1915 to form the Coast Guard, which absorbed the Lighthouse Service in 1939. Its peacetime duties still include prevention of smuggling; saving life and property on the seas; protection of the Alaskan fisheries, seal and other game refuges; removal of derelicts dangerous to navigation; furnishing medical aid to American fishermen at sea; policing regattas and marine parades; and suppressing mutinies on merchant vessels. In peacetime it carries on the international ice patrol in the North Atlantic, started in 1912 as a result of the loss of 1,500 lives in the sinking of the Titanic.

In U-boat warfare, Coast Guard men and ships are ideal for the daily drudgery of escort and patrol. The Coast Guard's peacetime strength was 18,000 men and something over 500 vessels of all types. Usually it had about 35 big cruising cutters of 327-foot lengths and less; over 100 patrol boats between 72 and 165 feet in length; over 200 picket boats, 65 feet and less, most of them assigned to coastal Life Saving Stations; about 40 lightships; about 70 lighthouse tenders, some over 1,000 tons' displacement; and various harbor tugs and training ships. Both in men and ships, it has been greatly expanded today.

SPARS

The Coast Guard has its own Women's Reserve for the re-

lease of men from certain shore jobs. The nickname of SPARS by which the new Reserve is known, is a contraction of the Coast Guard's Latin motto, "Semper Paratus" (Always Ready). Uniforms are the same as those worn by the Navy's WAVES, except for the shield of the Treasury Department which is worn on the sleeve and on the lapel. The officers' cap emblem is the Coast Guard eagle which has widespread wings. Lt. Comdr. Dorothy Stratton is the director.

FAMOUS NAVAL SAYINGS

"I have not yet begun to fight."—John Paul Jones, of the old Continental Navy, at the battle between the Bonhomme Richard and the Serapis, September 23, 1779.

"Don't give up the ship."—Captain James Lawrence, U. S. N., when fatally wounded at the battle between the Chesapeake and the Shannon, June 1, 1813.

"We have met the enemy and they are ours—two ships, two brigs, one schooner, and one sloop."—Captain Oliver Hazard Perry, U. S. N., after the battle of Lake Erie, September 10, 1813.

"Our country! In her intercourse with foreign nations may she always be in the right; but our country right or wrong."—Toast of Captain Stephen Decatur, U. S. N., at a dinner in Norfolk, Virginia, after his triumphant return from Algiers, Tunis, and Tripoli in 1815.

"Damn the torpedoes! Four bells! Captain Drayton, go ahead! Jouett, full speed!"—Rear Admiral David Glasgow Farragut, U. S. N., at the battle of Mobile Bay, August 5, 1864.

"You may fire when you are ready, Gridley."—Commodore George Dewey, U. S. N., beginning the battle of Manila Bay, May 1, 1898.

"Sighted sub, sank same."—Report of 1st Class Aviation Machinist's Mate Donald Francis Mason (now Ensign D. F. Mason, U. S. N.), after sinking his first U-boat, as announced by the Navy Department, February 26, 1942.

* * *

CIVILIAN DEFENSE

On May 20, 1941, the Office of Civilian Defense was established. Its main functions, as outlined by executive order, are to:

(1) Serve as the center for the coordination of federal civilian defense activities which involve relationships between the federal government and state and local governments .... Study and plan programs designed to afford adequate protection of life and property against war hazards . . . and disseminate information concerning civil defense measures.

(2) Keep informed of problems which arise in states and local communities from the impact of industrial and military efforts required by war, and take steps to secure the cooperation of appropriate federal agencies in dealing with such problems.

(3) Assist . . . in the establishment of state and local defense councils.

(4) Consider proposals, suggest plans, and promote activities designed to mobilize a maximum civilian effort in the prosecution of the war . . .; assist other federal agencies in carrying out their war programs by mobilizing and making available . . . the services of the civilian population; . . . and assist state and local defense councils or other agencies in the organization of volunteer service units and in the mobilization of community resources for the purpose of dealing with community problems arising from the war.

OCD has nine regional offices. State defense councils have been established by the governors of each of the 48 states. Most important civilian defense units are the more than 10,000 local defense councils, with representatives of local government, civic groups, law-enforcement officers, health and welfare agencies, labor organizations, chambers of commerce, real-estate boards, foreign language and other minority groups.

CIVILIAN PROTECTION

This branch of civilian defense functions most actively in what are called "target areas"—those sections of the United States which would be the most likely objectives of any enemy attack. In them live approximately 54 million Americans. For their home protection, 5½ million men and women have been trained in specialized duties such as fire defense, gas and air defense, hospital assistance, and so on. They comprise the U. S. Citizens Defense Corps.

Training for the protective services amounts in some cases to as much as 100 hours. In addition to training in their special functions, most volunteers take courses in first aid, general air-raid precautions, fire defense, and gas defense. After completion of training, all volunteers not members of constantly functioning services (such as the airplane spotters or nurses' aides) put in regular periods of practice drill.

Total reported enrollment in the protective services included, on August 31, 1943, the latest date for which complete reports are available:

Citizens Defense Corps

Staff corps (including bomb reconnaissance agents)	208,000
Drivers	121,236
Communications (including messengers, radio operators)	180,264
Chaplains	9,993
Instructors	31,850
Air-raid Wardens	1,767,080
Fire Guards	275,483
Welfare Workers	191,072
Auxiliary Firemen	388,686
Rescue	76,662
Auxiliary Police	418,796
Emergency Medical Service	389,764
Nurses' Aides	77,439
Utility Repair	179,030
Decontamination	35,411
Demolition and Clearance	89,922
Road Repair	109,452
Other units	7,371
Forest Fire Fighters Service	185,000
Aircraft Warning Service more than	350,000

Other federal agencies cooperate in the work of OCD's Protection Branch. The War Department assists in developing air-raid and blackout equipment. The War Production Board helps develop substitutes for critical materials which would ordinarily be used in some of this equipment. The Federal Security Agency is prepared to administer funds for temporary relief of civilian distress in an emergency. Practice blackouts and air-raid drills are held with the cooperation of the fighter commands of the U. S. Army Air Forces.

CIVILIAN MOBILIZATION

OCD's Civilian War Services Branch was created to marshal U. S. civilians in a concerted, planned attack on all home-front problems. Today, through its publications, its radio programs, its motion-picture training films, its speakers' bureaus, its press relations, and its field work, OCD reaches out all over America and builds up the country's physical and psychological resources to meet the crises of wartime living.

The War Services Branch outlines four ways in which every civilian should be alert to contribute whatever he is able:

1. Help supply the manpower and womanpower needed to run U. S. war plants.
2. Guard the health and welfare of families and communities so that they can be efficient units in the war.
3. Take an active interest in local government, to the end that American democracy will continue to be our greatest strength and inspiration.
4. Tighten the belt and adjust daily habits to conform with the restricted standards of a wartime economy. Get along with less; take care of possessions; salvage things ordinarily thrown away; invest in war bonds and stamps; save money to pay taxes.

As a badge of honor for those families which have made themselves fighting units on the home front, the OCD has created the V-Home certificate, awarded by the local defense council.

Also under the OCD is the Citizens Service Corps. More than 3,500,000 members are now recruiting workers for the varied war activities of the Red Cross. They help the Treasury Department sell war bonds and stamps, organize share-the-car clubs to conserve rubber and gasoline, run salvage campaigns, and work as volunteer clerks for Selective Service and War Price and Rationing Boards.

They collect and distribute books for servicemen and give their time to clerical work in local libraries. They plan entertainment for servicemen, working under the local United Service Organizations if there is an established branch.

They establish nurseries and other child-care services for mothers doing war work, or help run such services if they have already been established by private organizations. Particularly in localities with large foreign-born populations, they organize or assist educational programs designed to promote intelligent, understanding citizenship. They conduct classes in nutrition and food conservation for housewives and school children. They helped give instruction to 90,000 members of conservation groups in the Victory garden program of 1942. They aid welfare organizations in assuring the security of homes whose stability is threatened by departure of fathers or sons for military service.

Even the Boy and Girl Scouts have joined the Service Corps to work as messengers, scrap collectors, and war-stamp salesmen. Nobody is too young or too old to help.

FACILITY SECURITY

OCD's Facility Security Program, created in May 1942, coordinates security plans of other federal agencies; establishes security standards for the nation's essential facilities, including those privately owned or operated; and obtains cooperation in seeing that all necessary measures are carried out. It integrates the work of nine other government agencies in safeguarding communications; air commerce; rail and highway transportation; forest, brush, and grasslands; mineral lands and facilities; gas utilities; domestic water supply; and foodstuffs, fibers, naval stores, and vegetable oils.

CIVIL AIR PATROL

CAP has mobilized America's civilian flyers—together with their planes, equipment, and auxiliary ground personnel—for war work. Enrollment as of September 1943 was 87,000 men and women, 30,000 cadets (students taking pre-flight training), and the numbers are growing every day.

The organization executes special assignments for which military planes and pilots are not necessary. It carries on a far-flung anti-submarine coastal patrol and an extended courier and cargo service. It has proved invaluable in disaster relief work (for example in flood and tornado areas), and in searching for lost military aircraft.

Set up under the Office of Civilian Defense, CAP was transferred to the War Department on April 29, 1943, to be operated as an auxiliary of the Army Air Forces.

* * *

LEND-LEASE

The Lend-Lease program was started in the United States in March 1941 when the American people, though not yet at war, realized that supplying the tools of war to the nations fighting the Axis was essentially self-defense. As the program developed it was adopted by other members of the United Nations. Today they are aiding each other with the resources they can best supply in order to speed their common defeat of the enemy.

The lend-lease aid extended to the United Nations by the United States from the beginning, in March 1941, through October 31, 1943, totaled $17,533,000,000. In June, for the first time, the month's total aid rendered exceeded one billion dollars. In 1943, lend-lease aid is being extended at the rate of over 12 billion dollars a year.

Under existing Congressional authorization more than 60 billion dollars may be used for lend-lease aid, and additional aid can be extended by the transferring of ships by the Navy and merchant vessels by the Maritime Commission without any specific dollar value limitation.

The United States is a recipient of such aid from its Allies by the functioning of reverse lend-lease. In its own way this serves the same general purpose as does direct lend-lease—the making of essential materials available where they are needed. Dollar values have relatively little significance in determining the actual values of such goods because the important thing is to have the maximum of materials made available where they are most needed with a minimum of delay.

The Lend-Lease Act is administered by the Foreign Economic Administration headed by Leo Crowley.

Lend-Lease work begins with the requests for munitions, food, industrial supplies, or services by nations having lend-lease agreements with the United States. It ends when the lend-lease aid in goods or services has been delivered.

The President has declared the British Commonwealth and 39 other nations eligible for lend-lease aid. In determining the policy with respect to the extent of such aid, Lend-Lease representatives confer with representatives of various U. S. government agencies which are responsible for domestic policy on production and imports and exports of various materials. There is also a group of so-called Combined Boards which consider the problems of allocation and distribution from the standpoint of the availability and relative needs for such commodities as raw materials, munitions,

food, and ships. The membership of these boards includes United Nations representatives.

The FEA's Lend-Lease section does no purchasing. Procurement of lend-lease goods and services is in the hands of the War and Navy Departments, the Treasury, the Maritime Commission, and the War Shipping Administration. Up to October 31, 1943, Lend-Lease had allocated to these agencies $20,786,000,000 for purchases. This sum is exclusive of the 35 billion dollars appropriated to the War and Navy Departments directly, for lend-lease purposes.

The Foreign Economic Administration from this point acts mainly to see that orders are filled as quickly and efficiently as possible. Its missions abroad iron out supply and distribution problems on the receiving end, and try to see that goods are used effectively. They also work on problems of reciprocal aid with the governments of the countries where they are stationed.

GOODS AND SERVICES

Of the $17,533,000,000 total of lend-lease aid supplied by the United States through October 31, 1943, $15,165,000,000 represented goods transferred and $2,368,000,000, services rendered.

In the month of October 1943, transfers topped the billion dollar mark. More than half, totaling $762,000,000 were for munitions. Transfers of industrial items totaled $196,000,000; foodstuffs, $70,000,000; and services, $73,000,000.

Services rendered under lend-lease by the United States have included: building factories and shipyards in the United States to produce lend-lease goods, providing shipping to carry them abroad, constructing air bases from which planes are ferried across the oceans and continents of the world, repairing United Nations ships in U. S. ports and dockyards, performing supply services in the base areas abroad, and training United Nations air forces at U. S. bases.

At first lend-lease exports went primarily to the United Kingdom. As the war spread to Russia, Africa, the Middle East, and Australia, so did lend-lease.

With the signing of the first Russian protocol in October 1941, aid began to flow to the U. S. S. R. From this time until September 30, 1943, $3,284,000,000 of supplies were shipped to Russia from the United States. Munitions constituted 56 percent of the total; industrial items 27 percent; and foodstuffs 17 percent. Several thousand planes have reached Russia, many by air ferry routes, and over 1,400,000 tons of food from the U. S. have filled out slim Russian rations.

Aid to China has been seriously limited by transportation difficulties, but the amounts reaching the Chinese armies are increasing steadily. Training facilities for Chinese air force cadets set up in the United States under lend-lease are helping in China's six-year-long struggle against the Japanese. Two groups of cadets trained here are already in action, according to a lend-lease announcement in April.

Lend-lease planes and tanks which started leaving this country shortly after the Churchill-Roosevelt meeting in June 1942, proved invaluable to Montgomery's Eighth Army fighting Rommel's Afrika Korps in the Libyan desert. In the nine months preceding the British victory, the U. S. lend-leased to the forces in Egypt more than 1,000 planes, many hundreds of tanks, 20,000 trucks, and hundreds of pieces of artillery.

From October 1942 to April 1943, 600 million dollars' worth of shipments went to the Middle East and Africa. Besides these shipments, planes were ferried and equipment was transferred to Giraud's forces. In addition, lend-lease in Africa included some of the equipment used by General Anderson's First Army and arms produced in Britain from U. S. raw materials.

A new kind of lend-lease aid originated with the North African campaign—aid to liberated peoples. President Roosevelt directed the Lend-Lease Administration to supply weapons of war, food, and clothing to the armed forces and the citizens of North African areas occupied by the United Nations. "No one," declared the President, "will go hungry or without the means of livelihood in any territory occupied by the United Nations, if it is humanly within our powers to make the necessary supplies available to them." By November 11, 1943, about 298,000 tons of civilian goods valued at 48 million dollars had been shipped to North Africa from the U. S. These shipments included immediate relief needs such as food, clothing, and medical supplies. In addition, seed, fertilizer, and agricultural machinery were sent to implement the U. S. policy of helping the liberated country to restore its own industry and become, once more, self-sufficient and independent. To date the French government in North Africa has repaid the U. S. for 56 million dollars' worth of goods sent.

A table of total exports from March 1941 to September 30, 1943, by theater of action follows:

United Kingdom	$5,624,000,000
USSR	3,287,000,000
Africa, Middle East, and Mediterranean Area	2,003,000,000
China, India, Australia, and New Zealand	1,475,000,000
Other	513,000,000
Total	$12,902,000,000

The nations, plus the British Commonwealth, eligible for U. S. lend-lease aid are: Argentina, Belgium, Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Cuba, Czechoslovakia, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, Fighting France, French North and West Africa, Greece, Guatemala, Haiti, Honduras, Iceland, Iran, Iraq, Liberia, Mexico, Netherlands, Nicaragua, Norway, Panama, Paraguay, Peru, Poland, Saudi Arabia, Turkey, U. S. S. R., Uruguay, Venezuela, Yugoslavia. These countries, whose defense is deemed vital to that of the United States, embrace more than three-fourths of the earth's surface and three-fifths of the earth's population.

Food

Deliveries of food and other agricultural commodities to the Allies during the period from January 1, 1943, through September 30, 1943, totaled 8,412,000,000 pounds, or a monthly average of 935,000,000 pounds. Deliveries in August and September, at 1,077,000,000 and 1,099,000,000 pounds respectively, were slightly above the monthly average. In September, meats, fats and oils, and sugar accounted for 63 percent of the total.

Of the September shipments, the British Empire received 75 percent; Russia, 21 percent; North Africa, 3 percent; and West Africa, Greece, Martinique, and Poland combined, 1 percent.

With North Africa becoming more nearly self-sufficient, largely because of Allied rehabilitation measures, deliveries of food for use in that area have shown a steady decline.

LEND-LEASE IN REVERSE

The United States has received airfields, barracks, hospitals, vast quantities of food, services, and materials of all kinds for use by American soldiers within the borders of the Allied countries where they are stationed. This is reverse lend-lease. In addition to the value of the goods themselves, a tremendous saving in ship space has been effected and the

speeding up of delivery of vital goods made possible by this policy. Various United Nations have also helped one another by exchanging materials and services in exactly this same way.

In November 1943, President Roosevelt in a report to Congress summed up reciprocal aid extended the U. S. by the United Kingdom. He said that for the period ending June 30, 1943, the U. S. had received $1,171,000,000 of reverse lend-lease goods.

Lend-Lease from Great Britain played an important part in preparation for the African landings in November 1942. Supplies to U. S. troops included 3,800 tons of ammunition, artillery for one division, 160 Spitfires, 80,000 tons of coal, 2,000 tons of rations, medical supplies for 100,000 men for 30 days, 30,000 tons of engineer equipment. Right before the armada set sail, a shortage of a certain type of airplane radio equipment was discovered by the Americans. The British promptly turned over to the U. S. forces every piece of this equipment they had available. Two-thirds of the warships and transports used in the landings were British.

The United Kingdom has also lend-leased to the U. S. S. R. more than 2,600 tanks and 2,000 planes all produced in British factories, and continues to send to the Russian front combat weapons to fill the tremendous reserve stocks of Soviet-produced material.

Reciprocal lend-lease from Australia to the United States started with food shipments which got through to the beleaguered U. S. and Philippine forces on Bataan. Australia now supplies the great majority of rations to U. S. troops stationed in her continent. The 61,000,000 pounds of Australian meat, 30,000,000 pounds of potatoes, 22,000,000 dozen eggs, and 6,000,000 quarts of milk supplied U. S. troops up to June 30, 1943 took a large slice of the food pile of this country of 7,000,000 people.

Barracks and airfields have been constructed for U. S. forces there. Some U. S. nurses and soldiers in Australia are wearing uniforms made in Australian mills and factories.

New Zealand is duplicating the Australian effort in rendering reverse lend-lease aid to U. S. forces there.

China and the Fighting French are doing what they can to give reciprocal aid to the U. S. by helping to supply U. S. forces in their territories.

The important facts are (1) that reciprocal aid in instance after instance has been supplied the United States at critical times when the needed materials or service could be obtained in no other way, and (2) that it is an expression of the coordinated strength of the United Nations working together.

* * *

MANPOWER

There are approximately 135 million people in the United States. In August 1943, 55 million of them were working in jobs of all kinds. Almost nine million were in the armed forces. Unemployment had fallen to a rock-bottom figure of one million.

By July 1944, the War Manpower Commission estimates there will be an additional 2½ million men in the armed forces, while the civilian working force will be 8,375,000 smaller—a decrease due to curtailment of unessential civilian commodities.

In July 1943, the WMC predicted a need for an additional 3,200,000 workers in war-supporting jobs in the coming 12 months, to replace men being inducted and to meet the demand of expanding war plants. On that date an estimated 3,500,000, mostly women not now working, were available for employment. The overwhelming majority of these persons are in labor surplus areas like New York City, while the need for more workers is in the industrial centers already suffering from a shortage of housing and community facilities. The nation, therefore, faces a need for some way of transferring workers from one area to another, or of redistributing war contracts. Both tasks present great difficulties.

Between July 1943 and July 1944, it is estimated, 2,600,000 workers will have to shift from non-essential work to war-supporting jobs if the manpower needs and supply are to balance.

One way in which the United States will have to meet the situation will be by drafting a maximum number of men from the labor surplus areas and a minimum from labor shortage areas.

CONTROL OF MANPOWER

Most belligerent nations have controlled manpower through legislation. Because of the social and economic problems involved, the United States has sought to accomplish the job by enlisting the cooperation of industry, labor, community leaders, and government agencies. The problem has been tackled on a community basis.

By the end of 1943 the situation had reached a point where national opinon was divided as to whether voluntary methods could continue to control manpower or whether legislation was necessary.

The War Manpower Commission has taken the position that the manpower problem is really a series of local problems and has sought to solve it through community action.

The commission conducted an initial manpower program in Baltimore in the summer of 1943. An area director was appointed, a commission of government agencies in Baltimore set up, and an advisory committee of industry and labor leaders was organized. The director and the committee then sought to organize community campaigns to improve housing and transportation, to curtail labor pirating and turnover, and to encourage a greater use of local labor, including women, racial groups usually discriminated against, and handicapped workers.

One of the most important parts of such a program is the certificate of availability—a slip which a worker in an essential industry must secure either from his employer or the United States Employment Service before he can be hired by any other employer.

Stabilization programs, as the community actions are called, are in effect throughout the nation. In November 1943, seventy-seven areas had acute labor-shortages, 108 were areas of anticipated labor shortage, 105 were areas with adequate labor reservoirs, and 61 had a surplus of labor and no shortage was foreseen.

The community programs of the WMC have done much to diminish hiring discrimination against the Negro and to get women to take wartime jobs as a patriotic gesture. They have stimulated training and upgrading programs, giving workers a chance to increase their skills, their income, and their contribution to the war effort. Labor piracy by employers has been virtually ended, with the result that the shifting of workers from job to job in pursuit of higher

wages has been eliminated to a considerable degree. Turnover in general and absenteeism have been reduced.

The program, however, has failed to persuade workers to transfer from the non-essential industries to war-supporting work. The response to WMC appeals has been almost negligible. Workers in non-essential jobs protest that they have a peacetime security and standing in their jobs which will be retained for them if they are inducted but which they must forfeit if they move to war jobs which will last only for the duration.

It is this phase of the manpower problem for which the nation is now seeking a solution.

WOMANPOWER

The biggest source of labor in the United States today is womanpower. It is to the women of the nation that the war plants are now turning.

There are 52 million U. S. women. Of these, about 15 million are working at non-agricultural jobs and an additional 2½ million are employed at farm work.

As the manpower situation in the United States becomes increasingly serious, women are becoming more and more important. It was anticipated that at least one million more women must take jobs in 1943 if labor needs were to be met.

The Office of War Information is conducting a nation-wide campaign to inform the American women of the service they can perform by working. Some communities where the need was critical have put on campaigns of their own. Buffalo persuaded 21,000 women to take war jobs in six months. Dayton's campaign got 6,000 new entries into the working force. Baltimore got more women applicants than there were jobs.

Employers are also being urged to hire women part-time workers wherever practicable. Many women who cannot work full time because of their family responsibilities can and do take part-time jobs.

Normal peacetime prejudices against hiring women have vanished in most communities. In fact, today, the reverse is true. Employers are going to great extremes to secure and keep women employees.

Before the end of 1943 many industries had more women employees than men. In the 19 months ending July 1943, 2,300,000 new persons were added to the working force of the U. S., and 44 percent of them were women. The airplane industry is a typical example, the increase in women workers in all aircraft plants being such that they constituted more than half of the working force by December 1943.

AGRICULTURAL WORKERS

In 1943 there were more than 12 million agricultural workers raising food for a nation and a world at war.

Congress passed an amendment which prevents Selective Service Boards from inducting any farmer who is working full time at essential agricultural activity.

Most farms have an adequate supply of farm labor. There is, however, an acute shortage of seasonal labor. The government has appealed to office workers and others to spend their vacations on farms harvesting crops. In many farm areas whole communities have "closed shop" for a few days while all the townspeople went to work for the farmers. In isolated cases, soldiers have been sent to pick fruit crops.

THE NATION'S YOUTH

About 100,000 American youths reach their 18th birthday every month. Two-thirds pass the Selective Service physical examinations and go into the armed forces. The remainder promptly move into war industry.

There are in the United States about 8 million young people between 14 and 19. Many of them are working in part-time jobs. Many are spending their vacations in farm work or other employment.

In some agricultural areas where the need for seasonal labor is great, schools have been recessed to permit students to harvest crops.

SELECTIVE SERVICE

The growth of the armed forces has been a strain on the American home front and has made necessary a number of changes in the daily routine of individuals and communities.

Today, local boards have exhausted their supply of available men except for two classes—war workers and fathers.

The United States is the only nation which takes into consideration prewar fatherhood in draft classification. There are in the U. S. six and a half million fathers who, up until October, 1943, were draft-exempt. Many are in war jobs; others are not.

In the summer of 1943, the local Selective Service Boards were faced with the need for taking men out of war industry in numbers great enough to menace production, or of calling up fathers. (See pages 106-7.) Accordingly, the ban on drafting fathers was lifted on October 1, 1943. At that time Selective Service established three lists to make it possible for local boards to take first the fathers least important to the war effort.

One list is composed of critical workers, or those of whom there is a nation-wide shortage. Such workers cannot be replaced and are to be the last taken.

Another list contains essential workers. These men, while they can be replaced, are in important war-supporting work and are not to be called upon while others are available.

The third list contains jobs such as salesclerk, gas station attendant, bartender, night-club employee, etc., which are non-deferrable. Men in such jobs have been ordered to get into essential war work or face prompt induction. Men with these jobs are to be called into service first.

In between the non-deferrable workers and the essential workers are the unclassified workers who will be called after the supply of non-deferrables is exhausted.

A bill was ready for the President's signature in November 1943 which removes the administration of selective service from the control of the War Manpower Commission and puts it under the Army directly; it also abolishes the non-deferrable list so that all men are considered on the basis of their job status and their marital status and are drafted in a regular order. The bill does not exempt pre-Pearl Harbor fathers from the draft except insofar as this can be done without interrupting the necessary flow of manpower into the armed forces.

SOCIETY AND CULTURE

RELIGION

Freedom of religion is one of the basic principles of life in the United States. The first settlers sought religious freedom and were followed throughout the eighteenth and nineteenth centuries by waves of immigrants, many seeking liberty of worship or freedom from religious persecution.

The first of the ten original amendments to the Constitution, which were placed in force in 1791 and known as the "Bill of Rights," stated that "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof." Thus the right of every resident of the nation to worship as he pleases was established forever. That right has been supported in all the decades since.

Today, the United States joins the other United Nations in the present struggle to extend to all peoples the Four Freedoms—the second of which, as enunciated by President Roosevelt, guarantees the "freedom of every person to worship God in his own way—everywhere in the world."

As always, the places of worship of the country are centers of community life. They are a stabilizing force, religiously and socially. From and through them comes the faith that makes the United States morally strong. In a practical way, they serve widely as important sources for the planning and administering of welfare, educational, recreational, relief, and other programs.

CHURCH MEMBERSHIP

There are in the United States some 256 different religious bodies, with 249,887 churches. All-inclusive membership (all ages) is 67,327,719; members 13 years old or over are 54,890,044. These figures represent bodies reporting to a central agency; the actual numbers are undoubtedly somewhat larger.

Protestants, Catholics, and Jews make up the bulk of the religious population. In Protestant bodies with a membership of 50,000 or over, there are 36,793,661 members in 204,579 congregations. There are 22,945,247 Roman Catholics in 18,976 parish and mission churches, with 36,970 priests, 129 bishops, 21 archbishops, and two cardinals—William Henry, Cardinal O'Connell, of Boston; and Dennis, Cardinal Dougherty, of Philadelphia. There are about 4,641,184 American Jews in 3,728 congregations, with 3,000 rabbis and 1,028 Sabbath schools meeting weekly, and 1,192 weekday schools meeting three times weekly. Members of Eastern Orthodox churches number 1,158,635 in 777 churches.

Adherents of the various faiths are scattered throughout the United States. Generally speaking, the South is the most strongly Protestant area, though New Orleans and much of Louisiana are predominantly Catholic. Elsewhere Catholics are found chiefly in large cities, Protestants in towns and villages. The largest Catholic archdioceses are in Chicago, with 1,598,900 Catholics; New York, with 1,111,718; and Boston, with 1,092,078—all of these include some suburban areas. Most of the Jews live in large cities, chiefly in the East.

SMALL SECTS

Since freedom of religion has been an essential part of the American system from the nation's earliest days, scores of small sects have sprung up. In addition to the major religious groups, 204 different bodies with 1,700,000 members now function in the United States—a diversity not equaled elsewhere, except in India. Most of these sects—like the Seventh Day Adventists and the Mennonites—are "imported"; the two most important ones which are distinctively American are the Mormons and the Christian Scientists. Smallest known religious body in the nation is the Primitive Friends (one congregation of 14 members).

Christian Science was formally established by Mary Baker Eddy, in the Mother Church in Boston, Massachusetts, in 1892. The textbook of Christian Science is Mrs. Eddy's Science and Health with Key to the Scriptures, first published in 1875. Church membership is about 300,000. There are about 3,000 churches and societies holding services throughout the world and about 11,000 authorized practitioners. Among this church's periodicals is the Christian Science Monitor, an outstanding daily newspaper with an international reputation.

The Church of Jesus Christ of Latter-Day Saints, better known as the Mormon Church, was founded by Joseph Smith in 1830, based on the Book of Mormon which he claimed he had translated from ancient records. A migration of believers led by Brigham Young took place in 1846, from Illinois to Utah. The Mormons were pioneers in Utah, founding the first important settlements and establishing thriving communities. Polygamy was practiced by this sect until 1870.

Today there are six sections of the Mormon Church, one set up after the death of Joseph Smith in 1844. The six sections total some 931,584 members in about 2,255 churches. This church carries on an extensive missionary effort at home and abroad, under the direction of the Council of Twelve.

CHURCH ACTIVITIES

EDUCATIONAL

In addition to the free public schools which most American children and youths attend, there are a number of schools and colleges conducted by religious bodies. Those who wish to attend institutions founded, financed, or administered by their specific faith do so freely.

In 1942 there were 7,647 elementary Catholic parochial schools, with 2,048,723 pupils; 1,522 Catholic high schools; 638 colleges and academies for girls; 131 colleges and universities for men; and 193 seminaries with 16,838 seminarians studying for the priesthood. Members of other faiths may attend these institutions.

There are 106 junior colleges, three normal schools, 65 professional schools, one teachers' college, and 251 colleges and universities attended by more than 800,000 men and women, which were founded by Protestants and are now either financed or administered by members of that faith. Negro Protestant institutions numbered 37 colleges or universities, 17 junior colleges, two professional schools, and three normal schools. Members of other faiths may attend these institutions.

There are 49 accredited Yeshivas (Jewish-supported schools), in the elementary, junior high-school, and high-school classification, and one college, Yeshiva College in

New York; of these Yeshiva schools, 26 are in New York City. Registration in all 49 is about 11,000. In addition, there are five major Jewish theological seminaries and several smaller ones.

An important recent development is the released-time plan of religious education. More than 500 communities in 38 states release children from schools for a specified time for religious education of their own choice. Nearly 300,000 boys and girls in some 400 schools take part. Such communities are mostly in New York, Minnesota, Ohio, Illinois, Wisconsin. In New York State, 200,000 children of all faiths take part; 100,000 of these are in New York City.

CHARITY AND SOCIAL WELFARE

Although the welfare work of Protestant, Catholic, and Jewish agencies is supported with funds raised by the respective groups, there is seldom any line of faith drawn as far as beneficiaries are concerned. Emphasis rather is on the brotherhood of man.

Roman Catholic charitable work is centralized in 79 diocesan agencies, with 100 branch offices. Joint organizations of self-governing agencies, known as Catholic Charities, integrate the charitable activities of the diocese, set policies, help plan for the community, serve as a liaison between Catholic and other social work, and frequently obtain contributions for support of individual agencies. The National Conference of Catholic Charities, with which the diocesan agencies are affiliated, gives information and counsel and studies special problems.

There are 316 U. S. Catholic institutions which care for 38,456 dependent children, 75 child-placing agencies with approximately 22,000 children under foster care, and 100 Catholic day nurseries.

In 1942 there were 60 Catholic institutions looking after 8,000 girls with behavior problems and 17 industrial schools caring for 6,000 such boys. The 1941 directory of the Catholic Hospital Association of the United States and Canada reports 689 Catholic hospitals and 260 other Catholic institutions, with 92,073 beds and 2,298,617 patients, providing allied medical and nursing services.

Each of the larger Protestant denominations has its own program for social action. For instance, the Protestant Episcopal Church through its Church League for Industrial Democracy, promotes "the democratization of industry and the socialization of life"; while its Department of Christian Social Relations stimulates Episcopal social-work groups in hospitals, settlements, homes for children and the aged, and so on. The Board of Missions and Church Extension of the Methodist Church combines lay and clerical activities in industrial relations, work among Negroes, and work for the handicapped and unfortunate. Various branches of the Society of Friends (Quakers) do notable work among refugees, sharecroppers, and those stricken by the present war.

In 1942 there were more than 374 hospitals with nearly 40,000 beds operating under Protestant auspices. There were about 400 homes for children and over 210 homes for the aged. More than 230 settlement houses, with some 1,100 social workers, were established by Protestant individuals or groups, though some are now community projects.

Inter-denominational groups which do vital welfare work include the Federal Council of the Churches of Christ in America, embracing the administrative agencies of the twenty-four leading denominations; the Home Missions Council of North America, which works among minority groups and the underprivileged; the International Council of Religious Education; the United Council of Church Women; and the Council of Church Boards of Education, which promotes collaboration among denominational agencies concerned with higher education.

The Young Men's Christian Association (Y. M. C. A.) embraces 1,817 autonomous associations in cities, educational institutions, industrial centers, and the armed services. These associations undertake informal group education and physical, vocational, civic, and religious activities. The Young Women's Christian Association (Y. W. C. A.) unites 550 local associations whose program in general is similar to that of the Y. M. C. A. Both belong to international organizations.

Jewish social welfare work in the United States is carried on through a number of privately endowed institutions and—most frequently—through community-wide organizations. The Council of Jewish Federations and Welfare Funds, a national cooperative body, has a membership of 208 Jewish welfare groups.

There are in the United States and Canada 58 Jewish-established or Jewish-supported hospitals, with 12,069 beds. Some forty children's homes in the U. S. care for about 11,553 children, with hundreds more being brought up in foster homes supervised by Jewish agencies. Besides the 5,500 old people housed in more than 60 institutions, hundreds more are maintained by the Jewish community in private homes. There are 91 community centers conducted by the Young Men's Hebrew Association, by the Young Women's Hebrew Association, and by synagogues.

PRESS AND RADIO

News of religion, discussion of religious subjects, and the like are brought to the people via the religious press, which totals 1,000 publications with a circulation of about 13,000,000. There are 332 Catholic journals: 164 weekly newspapers and 168 magazines, with a total circulation of 9,125,655; 400 official Protestant publications, the majority monthly magazines, with a total circulation of about 4,000,000; and 185 Jewish papers, with an estimated 250,000 circulation.

Six hundred and sixty-four books on religious subjects were published in 1941, and 656 in 1942. No book circulation figures are available, but reports indicate that religious books are being read more widely now than before the war. The figures on numbers published in 1943 will probably be somewhat higher than those for recent years.

The Bible, for years the country's "best seller," is more widely read than any other single book. More than 8 million copies were sold or distributed in 1941 through commercial outlets, Bible societies, and agencies of the major faiths.

Through the radio, news and discussion, as well as prayer and worship programs, also reach the religious-minded of the three great faiths. As of October 1942, there were 19 national broadcasts of this type each week on the four major national networks, seven given on Sundays, and 12 on weekdays. These include nightly "prayer minute" programs at 6 P. M. each weekday, used alternately by representatives of the Protestant, Catholic, and Jewish faiths.

INTER-FAITH WORK

Activities uniting representatives of the three major faiths in civic, educational, charitable, and social enterprises are numerous in the United States. Local organizations of this kind frequently spring up to meet specific needs. A national body which seeks to interpret each faith to the others is the National Conference of Christians and Jews.

Founded in 1928 by Charles Evans Hughes, Newton D. Baker, and the Rev. Dr. S. Parkes Cadman, the Conference in its by-laws set down its objective thus: "To promote justice, amity, understanding, and cooperation among Jews, Catholics, and Protestants in the United States, and to analyze, moderate, and finally eliminate intergroup prejudices which disfigure and distort religious, business, social, and

political relations, with a view to the establishment of a social order in which the religious ideals of brotherhood and justice shall become the standards of human relationships."

INTERNATIONAL ACTIVITIES

The Catholic Church in America carries on its international activities through regular hierarchical channels.

Protestant denominations, each working independently, implement their several programs through such media as the Lutheran World Convention, the Baptist World Alliance, the Alliance of Reformed Presbyterian Churches, and the International Congregational Council. Quakers (through the American Friends Service Committee) and Unitarians are now engaged in important relief and welfare work in Europe. Other groups in which American Protestants are represented are the International Missionary Council, the World's Student Christian Federation, the World's Alliance for International Friendship Through the Churches, and the World Council of Churches, the last in process of organization.

The World Council is an outgrowth of two Protestant conferences held in the 1920's, one dealing with political, economic, and social questions, and the other with questions of faith and order. After the war, the Council is expected to function effectively along all lines previously laid down. Meanwhile, it cooperates with churches abroad by furnishing chaplains for prisoners of war, and Bibles provided by the American Bible Society; coordinating work for Christians who are refugees from German and Japanese persecution, or those who are still subjugated; supplying funds for war-relief work in China and other stricken nations.

From January 1, 1939 to August 31, 1943, American Jews contributed $61,950,000 to United Jewish Appeal for war relief. This fund-raising agency serving three relief organizations distributed the funds for various phases of overseas relief, refugee aid, and Palestine activities. Of the total funds raised annually by United States Jews for these programs, an estimated 80 percent is given to the United Jewish Appeal, although there are many other agencies carrying on the same type of work.

MISSIONARIES

Sagas of courage and devotion to duty are now being written in war areas overseas by hundreds of Christian missionaries. Many have been imprisoned or interned; many have come home. But most of them are still on the job, in mission churches, schools, leper homes, hospitals, dispensaries, orphanages, and homes for the aged.

Most recent official tabulations, as of 1938, showed more than 33,000 Catholic and more than 27,500 Protestant missionaries serving abroad.

The Foreign Missions Conference of North America, representing 122 Protestant foreign mission boards and agencies serving an estimated 1 billion people in all parts of the world, predicts a great missionary advance after the war.

WAR WORK

In whole-hearted devotion to the war program, the religious bodies of the nation have provided one chaplain to every 1,200 men in the armed services—a much higher ratio than that attained in the last war. Already these men have seen service under fire. In the Philippines, for example, they helped bring in dead and wounded during bombardments, finger-printed the dead, operated first-aid stations, brought up supplies, ran messages, helped men make their wills—all in addition to conducting services and acting as spiritual advisers. Before they go overseas, chaplains have five weeks' training in military law, hygiene, topography, field service regulations, first aid, and they take conditioning exercise besides.

Church-sponsored programs in every state range through the whole field of civilian effort, from setting up air-raid shelters in church buildings to entertaining the men and women in uniform when off duty. All this is done largely by inter-faith community committees, in cooperation with established civilian defense groups. Among the activities constantly under way are war-bond rallies; scrap-metal and other salvage drives; establishment of defense information centers, first-aid depots, nurseries, and "blackout committees"; and listing of residences of ministers, priests, and rabbis who will be available in time of need.

Churches near Army camps adjust their schedules and programs to accommodate men in training. Women's groups of all faiths entertain the men, arrange social events, frequently correspond with the soldiers' or sailors' families.

In areas where war factories are in operation night and day, special services are being held for workers, and social and educational programs are geared to the situation. In one big city, for instance, churches hold 2 A. M. services for war workers, with missions and Sunday schools similarly timed for their convenience. In a New England town, appropriate altars have been set up in a factory clubroom, and workers have their choice of Protestant, Catholic, or Jewish services.

POSTWAR PLANNING

All faiths are planning for a better postwar world. The first organized effort to focus on the problem came in February 1940 at Philadelphia, at a joint meeting of the Federal Council of Churches and the Foreign Missions Conference of North America. In December 1940, the Commission to Study the Bases of a Just and Durable Peace, now composed of nearly 100 religious leaders of the chief denominations, was formed. In December 1941, a Roman Catholic Bishops' Committee was organized to make the Pope's five points on peace more widely known and to foster peace studies along these lines. The first declaration on postwar objectives by a Jewish body came from the Central Conference of American Rabbis in a "Program for World Reconstruction" issued in June 1941.

Most of the statements so far issued stress certain major points: the principles of the dignity of man; the right to religious freedom, including public worship, preaching, and teaching; the need for effective international organization to protect the rights of nations and the rights of individuals, with special emphasis on minority groups; the need for international planning, to provide for an equitable distribution of economic power and for the satisfying of human needs; the right of all people to equality of opportunity; and the right of all men to the other basic freedoms of democracy.

On October 7, 1943, 146 representatives of Protestant, Roman Catholic, and Jewish faiths signed an Interfaith Declaration on World Peace which signified the united intention of the church leaders in this country to collaborate on a definite postwar policy. The Declaration consisted of seven points, which stressed the belief that the rights of all people should be subject to the good of the world community under a framework of collective security. Emphasis is placed, in the document, on a repudiation of racial and religious discrimination throughout the world.

* * *

SCIENCE

The powerful forces of science in the United States are concentrated now on the war, as extensive research goes on in physics, chemistry, medicine, nutrition, metallurgy, electricity, and synthetics in over 2,500 academic, industrial, and U. S. Government laboratories. In the space of a year, scientific research has experienced the greatest impetus in its history, with far-reaching results.

More than 300 million dollars is spent on industrial research annually. A number of industrial firms regularly set aside sums varying from 2 to 10 percent of their gross income for this purpose. The colleges allot 25 percent for work in pure science, much of it from foundation grants. The federal government devotes 2 percent of its total budget to one form or another of research, and some of its agencies spend from 75 to 99 percent of their income in the furtherance of scientific discovery, much of which is converted to public use.

Over 90 percent of the nation's research scientists are engaged in speeding the war effort. The work they are doing is essentially secret. Most of it has to do with warfare, with new explosives and firing devices, tougher armor plate, stronger alloys, improved weapons, and aircraft of greater speed and power.

But much of the work of these scientists holds promise for the postwar world. While they supply the armed forces with the implements of war, they also pursue the quieter task of building for peace—where science will serve man, not destroy him.

RESEARCH ORGANIZATIONS

The present war emergency has brought into being a group of special government and quasi-governmental agencies of temporary character which are carrying the principal burden of the scientific research and development work related to the war, in the United States.

These include:

1) *The National Roster of Scientific and Specialized Personnel*

This organization, headed by President Leonard Carmichael of Tufts College, and set up under the War Manpower Commission, has been functioning since July 1940. It was organized to build up and maintain an index of all American citizens who have special scientific or professional skill.

At present there are more than 500,000 persons listed on the roster in 59 special fields. Each person is carefully categorized by an elaborate punch card system which reveals not only his special field but supplementary information about his interests, language knowledge, etc.

The roster has been used with increasing frequency by government agencies, the armed forces, and war industry in securing qualified scientific personnel. By June 1943, the roster had certified more than 140,000 specialists.

2) *Office of Scientific Research and Development (OSRD)*

The OSRD, under the direction of Dr. Vannevar Bush, president of the Carnegie Institution of Washington, was set up in June 1941 to coordinate and supplement the scientific research and development work of civilian, War and Navy Department, and other government groups. Its advisory council includes ranking representatives of the War and Navy Departments, the National Advisory Committee for Aeronautics, the National Defense Research Committee, and the Committee on Medical Research (both operating under the OSRD); by invitation, the president of the National Academy of Sciences, and the director of the Office of Production Research and Development of the War Production Board.

Principal research and development work of OSRD is carried on under contract given to appropriate institutions, paid for through Congressional appropriation. The expenditure averages about 100 million dollars annually. Currently 1,400 contracts let to 200 industrial laboratories and 100 educational or special research institutions are active.

Like the military campaigns of the United Nations, scientific research is a joint enterprise and liaison is maintained with Britain through a liaison office in London which knits together the work of the U. S., Britain, Canada, Australia, and South Africa.

a) The National Defense Research Committee under OSRD is headed by President James B. Conant, of Harvard. Its 19 divisions receive, originate, and propose to the OSRD research projects related to the prosecution of the war. A division is responsible for projects in a particular field—such as fire control, surface vessels, sub-surface warfare, and so on.

b) The Committee on Medical Research (CMR) under Dr. A. Newton Richards, of the Medical School of the University of Pennsylvania, parallels the NDRC in the field of medical science.

3) *Joint Committee on New Weapons and Equipment (JNW)* was established by the U. S. Joint Chiefs of Staff, in May 1942 to bring together the men who were working on military and naval operations and the men who were working on research and development of weapons for those operations.

JNW constantly studies new weapons and their potentialities and brings anything which appears particularly significant to the direct attention of the High Command. Conversely the High Command brings its requests for research and development of particular types of weapons directly to the JNW.

4) *National Inventors' Council* was formed in August 1940 to receive and sift all suggested inventions relating to the war from any source submitted to any agency or person in the government. It works in close cooperation with the U. S. Patent Office and is under the chairmanship of Dr. Charles F. Kettering, vice president in charge of research for General Motors Corporation. (See also *Department of Commerce.*)

5) *Office of Production Research and Development*

Established in September 1942 in the War Production Board under the direction of Dr. Harvey N. Davis, president of Stevens Institute of Technology, this agency is being developed to provide for civilian producers the same service which the OSRD is providing the armed forces for war production. It concentrates on research leading to improved production methods and the development of substitute materials for civilian goods.

In addition to these temporary scientific agencies, the U. S. Government has supported and sponsored for many years permanent research organizations whose great facilities are now devoted wholly or in large part to essential war work.

Scientific research is carried on in 40 federal bureaus. Most important among them from the point of view of the scope and volume of its research work is the Department of Agriculture. From its many experiment stations and Beltsville laboratory have come most of the principal discoveries

and developments in the fields of plant breeding, animal husbandry, animal and plant disease control. In its four great industrial research laboratories throughout the country, research in the fields of science and industry has already produced improved developments in food dehydration; is building up stocks of penicillin (see *Medicine*); and continuing to make contributions to war medicine and industrial science.

Other important governmental or quasi-governmental research agencies are the National Advisory Committee for Aeronautics (see *Aeronautics* in this section), the National Academy of Sciences (National Research Council), and the National Bureau of Standards. (See also *Department of Commerce.*)

National Research Council

An organization set up during the last war, the National Research Council's usefulness lived on and it was continued permanently. Its nine permanent divisions covering the various fields of scientific research and administration are called upon constantly to perform important war services involving the placing of contracts for research work in various laboratories, and for advice. Operating under the Council are almost 200 committees many of which are working solely on wartime problems. Among these are Aviation Medicine, War Metallurgy, Passive Protection Against Bombing, and Wartime Diet.

Personnel of the Council's divisions and committees is made up of appointed members and also of representatives of scientific and engineering societies and schools, and branches of the government.

National Bureau of Standards

The National Research Council is working with the National Bureau of Standards on tables of thermal data, valuable to the chemical industry. This is only one small section of the mighty volume of invaluable research done by the Bureau of Standards, one of the ranking testing laboratories of the world, and an outstanding institution of scientific research. (See page 13.)

Established in 1901 and now directed by Dr. Lyman J. Briggs, the bureau has headquarters in Washington and several branch laboratories. Its personnel was doubled in the last war and its physical, chemical, and metallurgical laboratories are now staffed by 1,700 scientists and trained assistants. Its functions have expanded enormously in recent years. It is now carrying out confidential investigations for the Army, Navy, National Advisory Committee for Aeronautics, and OSRD.

Science, engineering, industry, and commerce all rely on the Bureau of Standards for precision findings. It calibrates electrical instruments for industrial and scientific uses, makes specifications for electrical material, and maintains standards for all electrical measurements, including those of radio. It tests the strength of large steel structures, determines wind loads on buildings, and in its hydraulic laboratory it studies the laws of flowing water.

In addition, it makes chemical tests of petroleum, paint, varnish, roofing materials, soap, cement, rubber, balloon fabrics, steel alloys, platinum metals, gas, and many other commodities.

RESEARCH PROGRESS

PHYSICS

Most recent developments in physics are based on the principles of electronics. The electronic tube is giving researchers unprecedented insight into nature's most mysterious and powerful forces.

The electron, the lightest known particle of matter, charged with negative electricity, is a part of everything in existence. The electron tube frees electrons from their attachment to the positively charged protons in the atom and thus releases a force of tremendous energy and speed which it directs and controls at will.

In its various applications the electron tube can: count 50,000 objects per minute, differentiate between 2,000,000 shades of color, open doors automatically, detect minute imperfections in machinery whirling at high speed. Electronic detectors warn of hostile planes many miles off, before they can be seen or heard. Warships at sea can determine the exact position of distant enemy vessels.

Tubes to perform many functions have grown in complexity and number until there are now some 750 types, divided into two classes—high-vacuum and gas-filled, and also into groups according to structure. Pliotrons is the name given to the group of radio generator-detector-amplifier tubes. There is a large group of rectifiers—devices which convert power from one voltage to another. This group includes kenotrons, thyratrons, and ignitrons. There are also X-ray tubes, phototubes, and television tubes, and klystrons and magnetrons.

The General Electric Company has just put into operation a 100 million volt X-ray, generated by an electron accelerator, known as the betatron, that will whirl electrons around in a great hollow glass doughnut to produce X-rays of a voltage never worked with before. From it will come new data on the properties of ultra-high voltage X-rays, the chemical, biological, and radioactive potentialities of high-energy electrons, and other potentialities yet unknown.

The cyclotron ("atom smasher") is an instrument which works on the same principle as the betatron, using positive rather than negative charges.

Through the development of the cyclotron the United States has become the world's leading country in the development of instruments which release and make available to man the enormous amounts of energy enclosed in the nucleus of the atom.

Through this, science has realized the age-old dream of the alchemist—turning one element into another. With the cyclotron, atoms are rearranged, their structure changed. Gold has been created from mercury. Dr. Ernest O. Lawrence of the University of California discovered the cyclotron and has built a 225-ton instrument at Berkeley. A 4,900-ton, 100- to 300-million volt cyclotron is now under construction there, which will be by far the most powerful instrument of its kind in the world.

TELEVISION

The principle of television was first suggested in 1884 when Paul Nipkow first announced the scanning disc—a device that divided a picture and strung it into one long line of light which, transmitted, was divided again in many lines by a receiver to form the original picture. With the invention of the cathode ray camera and picture tubes, television became a practical device.

This is the way television works. The electronic camera tube is mounted in the television camera, and the camera trained on the subject. The image is focused on a photosensitive plate at the back of the tube and the tube converts that image into a series of electrical impulses. These impulses are carried over a cable to a skyscraper antenna, and there transmitted.

In the receiving set is another electronic miracle—the

cathode ray picture tube. A stream of electrons, controlled at the skyscraper antenna, now plays across a fluorescent screen in the wide end of the picture tube. Electric impulses are thereby converted into varying degrees of light, forming again the picture of the subject picked up by the camera tube in the television camera.

AERONAUTICS

Scientific enterprise is reaching a new high level in American aeronautics. As the world's largest bombers roll off the assembly lines, plans are projected for 125,000 war planes in 1943. Through chemical advances in fuels, plastics, and light metals, aircraft engineers are designing transoceanic planes capable of flying to Europe and back nonstop, carrying pay loads of 50 tons. George A. Page, Jr., ace designer of the Curtiss-Wright Company, has projected a new transport capable of carrying 50 or more passengers. Henry Kaiser has designed an eight-engined cargo plane now going into construction which is 2½ times the size of the largest plane ever built. With an over-all length of 218 feet, a wingspread of 320 feet, and weight of 200 tons, it can take 60 tons of cargo, plus 8,000 gallons of fuel, and maintain a cruising speed of 174 miles an hour.

The American development of the turbo-supercharger accurately dubbed by one science editor, "wings for the stratosphere," makes it possible for American planes to penetrate 20,000 or more feet into the stratosphere where the air offers less resistance and storms and clouds are infrequent. In combat this enables U. S.-built planes to get above the enemy where flight is faster and danger of attack from ground fire and fighter craft reduced. The turbo-supercharger is a high-speed air pump which speeds up delivery of air to the plane's pistons at high levels.

The helicopter, which is going into active work with the American armed forces, is a newly developed type of aircraft designed after the Sikorsky model of 1939. Its advantages are that it can rise and descend almost vertically; it needs no runway for a take-off, can land on a space barely larger than itself; can hover in the air on watch, move backward, forward, and sidewise. In addition, this versatile aircraft can operate on solid land, mud, snow, ice, or water as it is equipped with low-pressure floats instead of wheels, and is exceptionally light. It is considered to hold special promise as an anti-submarine weapon.

Many recent developments in wartime aviation can be credited to the research instigated by the National Advisory Committee for Aeronautics, a quasi-governmental agency, made up of non-salaried members representing interested branches of the Army, Navy, and other governmental departments and representatives of industry. Chairmanship of the committee and majority control rests with a body of non-governmental scientists appointed by the President. The present chairman of the NACA is Professor J. C. Hunsaker, head of the departments of mechanical and areonautical engineering of the Massachusetts Institute of Technology, and designer, while a very young man, of the first American airplane to fly the Atlantic.

In addition to receiving all private requests for aeronautical research, passing on them and contracting for the projects, the committee carries on a vast amount of research of its own in three great research establishments—at Langley Field, Virginia; Moffett Field, California; and Cleveland, Ohio. Eighty research projects are presently being carried on in universities across the country under NACA contract. In this manner the committee has kept a vast body of scientists and engineers abreast of the needs of the armed forces in aviation, and the developments in aeronautical research turned up by their own research laboratory centers.

THE CHEMICAL AGE

Chemistry is remaking the world. Because of it, America is more self-sufficient than any other nation. In the war of 1914-18 the U. S. was dependent on German dyes. Nitrate came from Chile, camphor from Formosa, silk from Japan, all rubber from the East Indies.

Now a chemist can take a few commonplace materials such as salt, sulphur, coal, or limestone, even air, and produce insecticide, materials to case-harden metals or to bleach cloth whiter than snow. He can transmute these ingredients into rubber or a fast-freezing refrigerant.

The chemical industry comprises one-fifth of all manufacturing in the United States. Of basic importance in national defense, it makes heavy chemicals such as acids and alkalies, fine chemicals such as drugs and dyes, and a host of inorganic products as different in form and function as nylon and lucite.

PETROLEUM AND ITS BY-PRODUCTS

The production of high-octane gas, synthetic rubber, and high explosives by the petroleum industry is a major contribution of American chemical industry to the war.

High-octane gasoline is regular gasoline to which a chemical blending agent plus tetraethyl lead have been added, thus raising the octane numbers. Until recent years 87 was the highest octane gas produced. Hundred-octane gas now being shipped from the U. S. for use by the United Nations in millions of gallons enables planes to fly the same time with 20 percent less fuel. This means, for example, that a four-motored bomber flying 1,000 miles from its base can carry five additional 1,000-pound bombs when using 100-octane gas instead of 87-octane fuel.

In January 1942, only 22 U. S. refineries were making this high-octane gasoline or major ingredients of it. One year later 47 were producing it and 26 other refineries were scheduled to be in production by the spring of 1944.

In the fall of 1943, 126 domestic refineries were playing some part in high-octane production, and since April 1943, the U. S. Government has expended 500 million dollars for such plants.

Recent advances in production methods and expansion of production have cut costs from $16 a gallon a few years back to less than 1 percent of that sum today.

A new super-gas, with octane rating over 100, which will boost airplane engine power 50 percent above that produced with 100-octane gas, will soon be in production. This gas has been known to science for seven years. But a manufacturing process which makes it commercially practicable to produce was developed only in 1943 by Dr. Vladimir Haensel and Professor Vladimir N. Ipatieff.

DYES

The development of the dye industry in the United States, once exclusively a German monopoly, has been rapid, paving the way for the present high output of explosives and drugs. Henry Gould, of Boston, was the first American to recognize the possibilities of coal-tar dyes. In 1862 he imported 1,000 pounds of them. Soon, dye importers were flooding the textile centers with their products, and by 1870, Brooklyn and Albany, New York, had dye plants. The following year the tariff on aniline dyes was halved. By 1916 some

40 coal-tar intermediates and 100 dyes and medicines were being turned out in America, and organic synthesis was undergoing study in industrial laboratories. Today this output is growing steadily.

PLASTICS

Plastics are creating a new cycle in industrial history. They date back to John Wesley Hyatt, an inventor from Albany, New York, who in 1868, by adding camphor and alcohol to nitrocellulose, chanced on a product which he called celluloid. He patented it June 15, 1869.

Today the range of plastics seems limitless. Their combination of beauty, utility, and economy fascinates the public and spurs industrial ingenuity. Together with light alloys, synthetic fibers, and the new chemotherapeutic agents, profoundly affecting our housing, our clothing, and our health, they are changing the externals of American life. The magic synthetics of 1943 spring from air, water, and coal; from high-pressure synthesis of ammonia; from formaldehyde, phenol, and urea; from stalks of maize, wheat, soybeans, casein, and oat straw; from tanbark and paper.

Experimental airplanes of plastic composition have already passed tests. A number of firms own patents for plastic automobile bodies. Postwar cars made of plastics will be lighter, stronger, more decorative than any type on the market now. Few raw materials have fulfilled so many functions in so short a space of time. Plastics can be cut, sawed, drilled, milled, and machined. They come in sheets, rods, and tubes. They can be had in all colors, or transparent. They simulate tortoise shell, amber, onyx, turquoise, marble, coral, agate, and lapis lazuli.

Pyroxylin lacquers, a link in this glowing chemical chain, have changed the paint and varnish industry, and supplied an improved coating for automobiles. Bright-hued cups and saucers are evolved from four gases. The plastic case of a radio set is often literally created out of thin air. Half of the radios in use today are made from the phenol formaldehyde resins of the bakelite type. From 60 types of synthetic resin, dissolved in various solvents and plasticizers, come the basic materials that eventually coat a battleship turret, or provide the finish for a baby's rattle.

RAYON AND OTHER SYNTHETICS

The rayon descendants of the first synthetic fiber, produced half a century ago by the Frenchman Count Hilaire de Chardonnet, have grown to a point where, next to cotton, they are the world's most widely used textiles. Beside rayon, nylon, made of a magic collaboration of coal, air, and water; vinyon, made from natural gas; and aralac, made from casein, have taken their places in the growing list of synthetics whose production is reaching new highs for use in war and on the home front.

Much of 1942's half billion pounds of rayon production went to war. While rayon for civilians is usually spun into delicate textiles for use in clothing and housefurnishings, war rayons are tough and strain-resistant. They are often made from yarns 15 times the ordinary weights, and go into objects as unrelated as military tires and parachute lines. Rayon is used for the baby parachutes which drop food and medicines to stranded flyers and soldiers, and bombs on the enemy. Paratroop uniforms are made from rayon. Electric wires in submarines and other naval vessels as well as tanks, bombers, and fighter planes are often sheathed with rayon. Water-repellent tarpaulins of rayon are used for covering and protecting airplane motors.

So important is nylon to war, that its production now is entirely devoted to a host of war uses most of which are secret.

FOOD DEHYDRATION

The tremendous savings in shipping and storage space, the longer storage times made possible by dehydrating food, have made the food dehydration industry's production figures skyrocket overnight. Dehydrated meat production zoomed from practically nothing in 1940 to a projected 110 million pounds for '43; dried egg production is thirty times 1939 output. Dried milk production was raised from 322 million pounds in 1940 to 565 million pounds in '43. Almost all the one billion pounds of dried food to come out of U. S. dehydrators this year will head for the front for use by U. S. and other United Nations troops, and United Nations and liberated civilian populations.

Since war began great strides have been made in improving the flavor, color, and general appearance of dehydrated foods through new methods of production. It is predicted that after the war methods which because of wartime limitations on plant expansion and machinery production cannot be widely used today, will turn out waterless food by electronics, infra-red rays, improved vacuum methods, and a process of vaporization and resolidification. Present production turns out citrus powder which, with water added, tastes like fresh lemonade, powdered eggs that taste like fresh scrambled ones, frenched beans, diced carrots, and soups of superior flavor.

Chief claim for war value of dehydrated foods, however, is this: One ship carrying dehydrated foods can do the work of six carrying fresh fruits, meats, and vegetables. Cargo space is still one of the top needs of an advancing army.

NOBEL AWARDS

The Nobel awards, suspended for the duration of the war, came from a fund bequeathed by the Swedish scientist, Alfred B. Nobel, inventor of dynamite, who died in 1896. Americans who have received this recognition for scientific achievement are: A. A. Michelson (1907), physics, for measuring velocity of light; Alexis Carrel (1912), medicine and physiology, for his work in suturing blood vessels; T. W. Richards (1914), chemistry, for work on atomic weights and isotopes; R. A. Millikan (1923), physics, for measuring the charge of the electron; Arthur Compton (1927), physics, for showing that X-rays act like particles when scattered by reflection from atoms; Irving Langmuir (1932), chemistry, for discoveries in the field of molecular films; T. H. Morgan (1933), medicine and physiology, for his work in genetics; H. C. Urey (1934), chemistry, for his discovery of deuterium (heavy hydrogen); G. R. Minot (1934), medicine and physiology, with W. P. Murphy and G. H. Whipple, for their discovery of liver treatment for pernicious anemia; C. D. Anderson (1936), physics, for discovery of the positron; C. J. Davisson (1937), physics, shared with George P. Thompson, for discovery of diffraction of electrons by crystals; E. O. Lawrence (1939), physics, for invention of the cyclotron.

Exiled Nobel Prize winners now in the United States are: Albert Einstein (1921), physics, for his epoch-making theory of relativity (Einstein is now a citizen of the United States); James Franck (1925), physics, co-discoverer with Gustav Hertz of the laws governing the impact of an electron upon an atom; Enrico Fermi (1938), physics, for producing new radioactive elements by bombardments with neutrons; Otto Loewi (1936), physiology and medicine, jointly with Sir Henry H. Dale, for their discoveries relating to chemical transmission of nerve impulses; Otto Meyerhof (1922), physiology and medicine, for discovery of

correlation between the consumption of oxygen and the production of lactic acid in the muscles; Peter J. W. Debye (1936), chemistry, for contributions to knowledge of molecular structure through investigations on dipole moments and on diffraction of X-rays and electrons in gases; and Karl Landsteiner (1930), physiology and medicine, for discovery of the human blood groups (Landsteiner lived in the U. S. A. until his death).

* * *

MEDICINE

The United States is in the war with its population of 135 million well fortified against illness, its medical facilities greater than ever before in the country's history, its laboratories opening up new vistas of a sounder and more robust human race. Many of these advances, of course, have their basis in scientific discoveries abroad. And though the war has affected the free interchange of scientific information, the United Nations are finding ways to share the latest medical knowledge.

The impact of war has quickened research in the United States, as elsewhere. It has stimulated the medical world to advances of genuine promise for the future of mankind. The work of years has been telescoped into months. Already new discoveries have been used with dramatic effect in the battle zones.

The concentrated strength of the nation's medical equipment—its hospitals, laboratories, research institutions, and health agencies—is fully mobilized. Its function now is twofold—to buttress the armed forces; to maintain high levels of health, nutrition, and safety in the civilian population. Advances made in medical science are rapidly applied on both fronts.

MEDICAL FACILITIES

U. S. hospital facilities during 1942 were as follows:

	Hospitals	*Beds*
General	4,557	594,260
Nervous and mental	586	646,118
Tuberculosis	468	82,372
Maternity	113	5,903
Industrial	36	2,896
Eye, ear, nose, and throat	42	2,546
Children's	43	4,314
Orthopedic	79	7,313
Isolation	52	6,279
Convalescent and rest	139	9,793
Hospitals (departments of institutions)	194	18,532
All other hospitals	36	3,501
	6,345	1,383,827

On January 1, 1942 there were 180,000 registered physicians in the United States (7,995, or about 4 percent women). Fifteen thousand were full-time employees of medical schools, public health agencies, insurance companies, etc. Twenty-eight thousand were over 65 years of age and considered only ⅓ effective, 7,000 more were considered completely or partially ineffective, 42,000 were already attached to the armed forces, 88,000 were civilian doctors. At present, it has been officially estimated that the armed forces have taken about 4,000 more doctors, so that in September 1943 the picture stood as follows:

Army	37,500	doctors
Navy	8,500	doctors
Civilian	84,000	doctors
	15,000	public health doctors
	5,000	interns
	3,000	residents
	32,000	doctors able to give some degree of care.

Eventually the armed forces will claim 53,000 doctors—13,000 for the Navy and 40,000 for the Army. However, with 7,000 men and women graduating from medical schools annually, 5,500 of whom enter the armed forces, the additional 7,000 doctors needed to fill the quota of the Army and Navy will not have an appreciable effect on medical care for civilians.

Hospitals and universities have made adjustments to speed up medical training and free more men for military service. Vacations have been cut. Courses have been telescoped. Medical schools have arranged to compress their four-year program. Ten schools have increased their annual budget, and laboratory and clinical divisions have been extended. Nursing and hospital services in 1942 were as follows:

Graduate nurses in hospitals	120,114
Other registered nurses	139,060
Practical nurses	22,161
Hospital attendants	94,133
Operations performed in 1942	5,607,879
Hospital births in 1942	1,670,599
Approved internships (for 1943)	7,959
Approved residencies in hospitals (for 1943)	3,777
Approved medical fellowships (for 1943)	721
Approved medical schools	77
Schools for clinical laboratory workers	227
Medical libraries	324

Total grants for medicine and public health contributed by some of America's 314 foundations in 1940 were $12,273,590. Some of the contributions were as follows:

Rockefeller Foundation	$2,884,054.27
W. K. Kellogg Foundation	1,505,479.83
Commonwealth Fund	1,401,729.68
Duke Endowment	1,086,581.00
Winston-Salem Foundation	829,597.11
Carnegie Corporation of New York	796,104.13
The John and Mary R. Markle Foundation	685,805.00
National Foundation for Infantile Paralysis	515,047.68

RESEARCH

In over 2,500 laboratories the quest for new light on age-old problems goes on. The past two years have been notable for the development of three of the miracles of modern medicine—the sulfa drugs, penicillin, and blood plasma—and for advances in surgery, blood chemistry, vitamin research, the study of viruses, and other branches of medicine.

SULFA COMPOUNDS

The outlook for medical treatment has expanded dramatically with the growing scope of the sulfa drugs and their power to check infections. Diseases such as pneumonia, once so likely to prove fatal, have come within the range of relatively simple handling. Further benefits are in pros-

pect, as new refinements come from the laboratories. So far, more than 2,000 sulfa derivatives have been studied in the United States. Although the early development of sulfa therapy took place in Europe, America has extended its range by sustained laboratory work on the derivatives.

Sulfadiazine, an American product, is now the favored specific for pneumonia. Sulfaguanidine and sulfasuxidine are gaining ground as the most effective derivatives for the lower digestive tract, conquering germs that cause bacillary dysentery, cholera, typhus, and typhoid.

The sulfa drugs are simple to administer. They can be given by mouth or intravenously; they can be sprayed directly into wounds; they can be applied to the eyes in ointment form. Dangers in their use have been reduced, and each new derivative accepted by the medical world adds to their benign record. Although they achieve remarkable effects, and their results in many cases are nothing short of spectacular, the way in which they operate is not yet fully understood. They are not true germicides; they injure bacteria by interfering with their life processes. Then the natural protective and recuperative processes of the body overcome the weakened invaders.

PENICILLIN

Although research on penicillin, a drug produced by a cheese mold, is still in the experimental stage, it is already quite clear that its discovery will be a landmark in medical history. It is the most powerful bacteria killer known—much stronger than any of the sulfa drugs.

One of the newest and most effective weapons in war medicine, penicillin has produced cures in cases of gonorrhea where the sulfa drugs have failed. More recently, cases of syphilis in the primary stage have been cured by penicillin. It is in a class by itself in the treatment of staphylococci infections, and has been found successful in the treatment of osteomyelitis, blood poisoning, pneumonia. It is nontoxic and can be injected directly into vein or muscle.

As an illustration of its tremendous power, one part to 160 million completely stops the growth of the pus-forming germ, staphylococcus aureus. One hundred thousand units (one-fiftieth of an ounce) can cure cases of sulfa-resistant gonorrhea in two days.

It was discovered by the English scientist, Dr. Alexander Fleming in 1929. He observed that when an agar plate, on which he was growing disease-producing bacteria, became contaminated with cheese mold, the germ colonies immediately surrounding the mold were destroyed. From the mold he prepared crude extracts of penicillin. Because of the difficulty of securing sufficient amounts of penicillin for wide experimentation it remained a laboratory curiosity until a year ago, although Dr. Howard Florey of Oxford got a hint of the drug's efficacy in 1939 through experiments on mice and finally on human beings.

Last year American science entered the picture. Chemical and pharmaceutical houses went to work to break the bottleneck in penicillin production with the same zeal American industry had used to solve the problems of war production. They came out with the same success. Today, many millions of units of this critical drug are being made available to the armed forces of the United Nations. Every major pharmaceutical house in the United States is producing it. One firm recently opened a new plant of 20,000 square feet to be devoted exclusively to penicillin production.

While the American pharmaceutical industry is straining for maximum natural production of penicillin, scientists are trying to discover the correct chemical formula for the drug so that it can be produced synthetically. When synthetic production is possible penicillin will undoubtedly rank as one of the leading lifesaving devices in modern medicine.

GRAMICIDIN

Dr. René J. Dubos, of the Rockefeller Institute, has extracted from a soil bacillus a chemical named gramicidin, which has appeared effective in treatment of skin diseases, stubborn cases of pleurisy, and pus-ridden wounds. It has proved extremely promising in the treatment of sinusitis. Army physicians are using it experimentally in a throat spray to prevent sore throats and colds. It can be administered only locally in body cavities and in unbleeding wounds.

MISCELLANEOUS DRUGS

Atabrine is produced in quantity in America now as a synthetic substitute for quinine, which at present cannot be imported. Authorities say it is 95 percent as effective as quinine in treating malaria, a disease that annually saps the strength of 800 million persons and kills an estimated 3½ million throughout the world. (See *Public Health.*) The small yellow atabrine pills have increasing significance for Americans as U. S. soldiers concentrate in tropical areas.

Two new types of insulin came into medical use in 1941—histone-zinc and globin-zinc insulin. In December of that year the patent on insulin expired and control of the strength, purity, and quality of the substance passed from the University of Toronto, in Canada, to the U. S. Government.

The long scientific search for an effective anti-coagulant seems answered in the discovery of heparin, an anti-blood-clotting substance developed from the lung tissue of cows, and dicoumarin, extracted from spoiled sweet clover. Certain surgical operations, once impossible because of the danger of blood clots, may now be performed with greater safety. Dicoumarin is cheaper than heparin and may be taken by mouth, but its action is slower and it is less potent in an emergency.

Vitamin K, which is necessary in the production of prothrombin, a substance in the body which regulates the normal clotting of the blood, is being studied as a deterrent to hemorrhage.

VITAMINS

The medical profession in general has responded cautiously to the rapid advances of the past 40 years in the field of vitamin research. It deplores the zest with which the public buys and doses itself with vitamin preparations which have been so highly commercialized that they are often used with little concern as to their value or effectiveness. Under control, and applied to genuine deficiencies, they figure among the great advances in medical science. The war emphasizes their importance, now that the pinch of food shortage is felt throughout the world, and the door is left wide open to malnutrition. For often, when a natural vitamin-rich diet cannot be supplied, deficiencies can be filled in with natural or synthetically produced vitamins which will help maintain health.

Vitamin concentrates are a valuable addition to food shipments from America. They are used for the undernourished of the United Nations, for the armed forces, for endurance flights, and to maintain good dietary standards at home.

In the first year of Lend-Lease alone, from April 1941 to March 1942, the United States shipped, to Great Britain principally, 90,563 pounds of Vitamin A, 1,833 pounds of carotene (precursor of Vitamin A), 4,710 pounds of Vitamin C (ascorbic acid), 2,886 pounds of Vitamin B_1, and 248,865 gallons of orange and lemon juice concentrates to supplement Vitamin C supplies in the diet.

American and British night flyers are given extra doses of Vitamin A to keep their ability to see at night up to par. England requires that all flour be enriched to a point where it has the nutritive value of whole wheat flour. This was done to step up the caliber of wartime diets which lean

heavily on bread as a staple food. Since 1941 the United States has promoted enriched bread which by federal food and drug standards must contain minimum amounts of thiamin, riboflavin, niacin, calcium, and Vitamin D.

The United States Army's Ration K which, often for days at a time, is a steady diet in front-line fighting contains biscuits enriched with vitamins and concentrated fruit juice rich in ascorbic acid.

The important part vitamins, as they occur naturally in food, play in a balanced diet is stressed in all nutrition campaigns in the United States. The food program is planned with a basic vitamin content in mind, and through the cooperation of public-minded business enterprises, correct information about vitamins has reached a wide audience in the United States since the war began.

The list of recognized vitamins increases steadily. Most important recent work in this field in the United States has been done on biotin. This vitamin, suspected as early as 1901, and extracted in 1936 from dried egg yolks by Koegel and Toennis of Utrecht, Holland, is now recognized as one of the life-essential vitamins. It is one of the most potent substances known and no life could have developed on earth without it.

Even after its extraction in pure form in 1936 the problem of discovering its chemical structure and synthesizing the vitamin confronted science. Americans solved these riddles, winning for themselves two of the great prizes of contemporary science.

In October 1942, Professor Vincent de Vigneaud, head of the Biochemistry Department of Cornell University Medical College, and his associates announced the three dimensional chemical architecture of the biotin molecule. The pattern is made up of a total of 32 atoms of carbon, hydrogen, oxygen, nitrogen, and sulphur. The crux of the problem of discovering the biotin pattern lay in determining which of literally billions of possible arrangements of these 32 atoms this vitamin molecule followed. Its discovery after more than two years of research led to the synthesis of the vitamin which before this was valued at the rate of 4 million dollars an ounce. Synthesis was announced by the Merck & Co. laboratories of Rahway, New Jersey, and credited to Drs. Stanton A. Harris, Donald E. Wolf, Ralph Mozingo, and Karl Folkers.

The synthesis of biotin which makes it available to scientific research in large quantities opens up new fields in the investigation of diseases whose cures have remained to date among the baffling mysteries of medicine.

The knowledge of the structure of biotin and the ability to synthesize it will also help in the discovery of the structure of avidin, the anti-biotin factor in raw egg white, which appears to have a neutralizing or brake effect on the growth-producing quality of biotin. Investigations along this line are being carried on now in an effort to develop a new approach to the treatment of cancer. But at present no definite determination of their value has been made.

INFANTILE PARALYSIS

Recent research on the virus of poliomyelitis substantiates earlier findings in Sweden that the intestinal tract is as likely to be the medium of transmission as the nasal passages.

Dr. P. H. Harmon, of the University of Chicago, reports finding the polio virus twice as often in intestinal matter as in respiratory droplets. His conclusions are backed by the studies of the late Dr. James Trask and Dr. John R. Paul of Yale University Poliomyelitis Commission, who traveled from city to city where numerous polio cases were reported, took sewage samples, and found the offending virus. Transmission by sneezing, however, has not been ruled out of the picture. It is still believed that the virus may be conveyed in different ways—by water, milk, or food, by insects, or through polluted beaches and swimming pools.

Gains have been made recently in the treatment, if not in the control, of infantile paralysis. The Kenny treatment, brought to this country by Sister Elizabeth Kenny from Australia, is being used at a joint center established by six leading New York hospitals. Graduate nurses and physiotherapists are being schooled in her technique in clinics throughout the country.

The main innovation in the therapy is the substitution of manipulative treatment for the former method of immobilization of the affected parts. In addition, the treatment includes the use of hot packs, and the early exercise of injured muscles.

Experimentation in the use of the chemical prostigmine with atropine in infantile paralysis indicates that it hastens recovery from the disease. It relieves the tension and muscle spasm and also reduces the in-co-ordination. The results begin to appear as early as one hour after the drug has been given. It has been found effective in cases where treatment was not begun until 16 months after onset of the disease.

CANCER

Next to diseases of the heart, cancer remains the leading cause of death in the United States, as in many other parts of the world. An estimated 167,805 Americans died from cancer in 1942. But the high mortality rate is due in part to the fact that life expectancy has lengthened. Advances in medical science, better nutrition, educational and preventive measures have added to the longevity of the average American, so that now many more of the population live past the age of 65 than at the turn of the century. This means that the serious degenerative diseases loom larger in statistical surveys.

Though important strides in cancer research have been made in recent years, the conquest is not yet in sight and education remains the principal control, since it is now well established that cancer discovered in its early stages is curable. The National Cancer Institute of the U. S. Public Health Service, and the American Society for the Control of Cancer have been largely responsible for educational progress which has resulted in more frequent detection of the disease in its curable stages.

Money spent on cancer research and educational campaigns in 1942 totaled $2,230,000. There are 359 cancer clinics throughout the country. Cancer control programs established in 1941 in Arizona, New Mexico, Wyoming, Montana, and Idaho, brought the total state and territorial cancer programs to 39. Radium loans under government auspices for cancer treatment were renewed to 41 hospitals, and made to three additional institutes. In 1936 the American Society for the Control of Cancer launched its Women's Field Army Against Cancer, which now has more than 350,000 enlisted volunteers, active in 46 states, educating the public to be on guard against cancer. Practically every state, and many county medical societies, now have cancer committees. An active program is under way to have cancer education included in high-school curriculums throughout the country. (See also *Public Health.*)

MENTAL HYGIENE

In the middle of the last century, Dorothea Dix fought effectively for improved care for the mentally ill and was instrumental in establishing many hospitals in the United States. Later she accomplished similar results in England and other European countries.

At the beginning of this century, Clifford W. Beers, a

recovered mental patient, wrote of his hospital experience in the book A Mind That Found Itself. This led to the formation of the mental hygiene movement, under the leadership of the National Committee for Mental Hygiene and local organizations concerned with improving the conditions of the mentally ill and establishing early treatment and preventive measures. This movement, originating in the United States, has extended to many other countries where comparable national mental hygiene organizations exist.

The United States Public Health Service has assumed responsibility for aiding states in evaluating their resources for the mentally ill and has a staff which surveys states for this purpose.

Within the past two decades the United States has gradually acquired leadership in the field of psychoanalysis and is now recognized as the world focus of this interest.

The child guidance clinic, as at present conceived here and abroad, had its beginnings in work initiated in the United States in connection with the juvenile court. There has been a continuous growth of this field, including refined therapeutic methods. Psychiatric social work developed in the United States as a means of amplifying and extending the efforts of the psychiatrist out into the community. The psychiatric social worker became useful in the organization of case histories. Subsequently, through a better understanding of the influence on the patient of the interview itself, she came to assist also in psychiatric treatment.

Because of the scarcity of psychiatric personnel, current experimentation focuses on methods of group psychotherapy and brief psychotherapy (which diagnoses and attempts to correct only the immediate problem).

A sizable body of fact, a quarterly periodical, a number of textbooks, and a number of faculty appointments in the medical schools have centered about the development of psychosomatic medicine through which some of the general medical problems that have resisted treatment have come to be better understood and controlled, and some of the obstructions to successful medical treatment have become clearer.

The United States has developed and brought into extensive use the electro-encephalograph whereby much light has been thrown on abnormal brain function.

The many changes in psychiatry and mental hygiene have entailed an extensive revision of many departments of psychiatry in medical schools over the past twenty-five years. In addition a certifying board to identify competent psychiatrists makes it easier to select a person of competence.

The Northern Jurisdiction of the Scottish Rite provides $50,000 annually for research into dementia praecox and currently for mental hygiene projects of value to the war program. This fund serves both the United States and Canada.

More extensive use and experimentation with drastic therapies—insulin, metrazol, electric shock, and pre-frontal lobectomy—have for the first time built up a large body of knowledge in this field. Dr. Manfred Sakel, discoverer of the insulin treatment for insanity, and known as the "Pasteur of Psychiatry," has recently become a citizen of the United States.

In the selection of men for the armed forces many states have established a large volunteer group of workers to secure case histories for the better psychiatric evaluation of men.

Within the armed forces, mental hygiene clinics not connected with the hospitals have been established for the early treatment of maladjusted soldiers and have salvaged many for continued duty through this process. Within the Navy every reception center provides a careful evaluation of recruits. For the first time psychiatric social workers, men in uniform and women supplied by the Red Cross, have participated in this service to the able-bodied.

For the merchant seamen who have experienced devastating calamities, a program of psychotherapy for the prevention and cure of war neuroses (or combat fatigue) has been developed. It includes group psychotherapy and psychiatric service in special rest homes.

Conscientious objectors who have been exempted from military duty have been assigned for civilian duty quite extensively as attendants in mental hospitals.

SURGERY

Surgery, like medicine, has been moving forward with improved techniques, improved anesthesia, new instruments, and again the sulfa drugs, which are setting a new pace in surgical procedure by reducing the dangers of post-operative infections. Sulfa drugs are particularly valuable in intestinal surgery and can be applied directly to the affected area.

New variations of anesthesia are being tested constantly. The technique of giving anesthetics has undergone improvement in general, but particularly in chest surgery.

One of the new developments last year was continuous caudal analgesia to control pain in childbirth, and for use in other branches of medicine. Two U. S. Public Health Service surgeons, Drs. Robert A. Hingson and Waldo B. Edwards, developed it and it has been used by them for relief of pain in childbirth in 1,150 cases of which 95 percent were successful. Continuous caudal analgesia as developed by Drs. Hingson and James L. Southworth for surgery has been used successfully for 1,500 operations under their supervision. They have extended the use of this method to other branches of medicine and in treating orthopedic and traumatic injuries of merchant seamen, Coast Guardsmen, and Navy Yard workers with promising results.

Brilliant advances have been made in brain surgery. In particular, the development of the electro-encephalogram, which makes possible the precise location of tumors, has increased the percentage of successful brain operations. In the treatment of head wounds among the armed forces, too, new scientific discoveries have vastly increased the chances of recovery. The wounded man takes sulfanilamide orally as soon after the injury as possible, and then again in the hours preceding the operation. In this way he builds up a preliminary supply of the drug in his blood. At the time of the operation, sulfanilamide is sprinkled right into the brain before the incision is closed, thus helping immeasurably to avoid infection. The use of blood plasma to decrease shock in patients with head injuries also greatly helps their chances of recovery. And in the treatment of head wounds, more than in any other single kind of injury, the fact that a patient may be flown by air transport to a hospital with adequate facilities for lengthy operations cancels the chances of death due either to too long a lapse of time before operating, or to operations performed too hastily without the proper equipment or personnel.

Various new mechanical aids to surgery are in use for the armed forces as well as the civilian population. An electric magnet, designed by a mechanical draftsman in New York City and known as the Moorhead Foreign-Body Finder, locates bullets and schrapnel fragments lodged in the human body. One of the chief virtues is that it does away with slow and painful probing. Colonel John J. Moorhead used this detector effectively in treating wounds incurred in the attack on Hawaii, and thereby gave the magnet its name.

A new Air Forces X-ray machine, designed at the Army Medical School in Washington, locates bullets or shrapnel instantaneously. Doctors make an iodine mark on the body, locating the metal and the depth of the projectile is recorded.

The Singer Sewing Machine Company has a surgical stitching instrument which simplifies the formation of continuous and interrupted stitches, and a simple device known as the "darning egg" is used in suturing wounds.

WAR MEDICINE

Recent advances in medical and surgical procedure have already been turned to account for the armed forces of the United States. Ninety-seven percent of the Navy wounded, from December 7, 1941 through March 31, 1943, have recovered. Figures for recovery of Army wounded are comparable.

A breakdown of these figures shows that 53 percent of the Navy wounded had returned to duty by March 31; 43.5 percent were still under treatment, while only .9 percent had been invalided from service.

Much of the credit for the great decrease in hospital deaths of wounded—a drop of 80 percent from 1918—is given to the intricate system of field medical care. In the Army this begins the moment the soldier is injured. He is armed with a first-aid kit which contains sulfa powder which he sprinkles in his wounds, cutting danger of infection, and sulfadiazine tablets which he takes orally. He is soon reached by a medical corps man who gives him an injection to stop pain, indicates the treatment he has administered, and leaves him for the litter bearers to pick up. He is taken to a battalion aid station 400 to 1,000 yards behind the lines where he is given lifesaving treatment—especially plasma, to prevent shock—and surgery. From there he is evacuated to a collecting station where it is determined what specialized treatment he needs. Speed is the important element in the system, and of course, sulfa drugs and plasma play a strategic role in preventing death. Ambulance planes, which cut transportation time, are regularly used when speed is important in treatment of the casualty. Wounded are often transported thousands of miles to base hospitals where correct treatment for the individual patient can be administered.

The flash burns of modern warfare have lost much of their hazard since Dr. Perrin Long demonstrated that sulfadiazine, sprayed directly on the affected area, is more effective than tannic acid. Its power to mitigate the searing process and aid in healing has been amply demonstrated in outposts of the world.

BLOOD PLASMA

The greatest advance in emergency treatment of serious injuries in the past quarter century is the blood-plasma transfusion technique, which has given hundreds of thousands of civilians the chance to make a direct contribution to the men of the fighting forces.

Dr. Max A. Strumia, an American pathologist, first extracted plasma from human blood in 1925. Years of experience perfected his initial discovery. Since 1925 scores of American scientists have helped to bring it to its full development.

Thousands of fighters already owe their lives to the Red Cross plasma kit. The drive to collect blood from the public was launched early in 1941 by the American Red Cross, at the instigation of the National Research Council. In December, 1943, donor centers were in operation in 33 cities. By then, more than 4 million pints had been collected. Men and women from every walk of life were giving 95,000 pints a week. Eleven commercial laboratories, under government contract, process the plasma at cost. (See *Government*, page 24.)

Eighty-five percent of the casualties of this war have been caused by shells, shrapnel, torpedo explosives, or flash burns. Under these conditions the patient loses much blood, there is danger of shock, and quick transfusion is essential. Blood plasma meets this need under most conditions, since the blood does not have to be typed.

It is processed in the first place by being poured into a centrifuge and whirled at high speed until the red and white corpuscles settle to the bottom, leaving the plasma on top. This is siphoned into vacuum-sealed bottles and frozen. Later the frozen plasma is dehydrated, leaving a flaky, golden substance that is bottled, and packed in a carton with a pint of sterile water. Both bottles are sealed in tin cans, along with rubber tubing and transfusion needles.

When put to use, the plasma, mixed with the sterile water, flows along a rubber tube into the blood stream. In 15 to 30 minutes the patient receives the equivalent of a pint of blood. Years after it is prepared, the vital force of its proteins and antibodies should remain unimpaired.

The success of this technique has opened up other possibilities. Dr. Edwin J. Cohn and his colleagues at Harvard University have prepared human albumin, the blood constituent that composes 60 percent of the proteins in plasma. In 1941 the American College of Physicians granted funds for an experimental human-albumin plant. The purified protein, now being studied intensively by the National Research Council, is already in use in some war areas.

The medical school of Louisiana State University reports the use of cow albumin, without unfavorable reaction, when prepared according to the Cohn technique. This suggests the future use of animal blood plasma to save human life. All the work under way with blood plasma shows promise, not only for the immediate needs of the armed forces, but for the future welfare of mankind.

MEDICAL ORGANIZATION IN THE ARMED SERVICES

The medical bureaus of the Army and Navy are responsible for the health of the U. S. armed forces (See *Army* and *Navy*). Men in all branches go forth better equipped physically than in any previous war in American history. They are fine physical specimens, taller and heavier than the soldiers of the last war. They are all inoculated against typhoid fever, smallpox, and tetanus. Those going into tropical areas get additional inoculations against typhus, cholera, yellow fever, and plague.

New techniques for improving vision, supplying oxygen, and testing psychological conditions in flyers, have been introduced through military aviation. Research has been done on drugs designed to combat fatigue and increase endurance. A compact, lightweight, and nourishing ration has been evolved for parachutists, and for delivery by air to troops engaged in mobile assault operations. Tablets containing vitamins A, B, C, and D, are carried by these men, and by troops stationed in northern latitudes.

The Army medical organization of today, equipped and trained for field service, had a budget of 85 million dollars

for the fiscal year ended June 30, 1943. The protective network that surrounds the soldier on his home ground includes hundreds of hospitals, and more are being constructed at a projected cost of 160 million dollars. More than 500 pharmaceutical items are stocked for the Army. Each camp or station with more than 10,000 troops has its own dental clinic building.

Mobile field equipment includes X-ray machines, weighing 399 pounds apiece, which can be taken apart and put together again in less than 30 minutes; operating rooms, bacteriological and optical laboratories, dental units, water-purifiers. Hospital cars which are the key units of hospital trains have kitchens that feed 500 persons, and operating units where 80 major operations can be performed in 24 hours.

Months of research have also produced folding equipment which can be carried right to the front line areas with the troops. This equipment includes folding litters, splints, first-aid kits specially prepared for different climates and different types of warfare, medicants with directions which soldiers can follow for self-treatment.

Mobile field equipment includes operating rooms of the trailer type, X-ray units, medical laboratories, and hospital cars.

Army sickness and death rates during the period of mobilization were the lowest on record in America. There were no epidemics in the Army in 1941 and the incidence of disease has since declined despite the greater concentration of men. Even common ills—colds, sore throats, measles—are at a low level.

In the last war, one meningitis case in three was fatal; the death rate now is down to one in 20. The malaria rate was only 0.61 for the first eight months of 1942, compared with 1.24 for the previous year. Vaccination has almost eliminated smallpox. Rigid sanitary control, aided by a new and potent vaccine made at the Army Medical School, has gone far to wipe out typhoid fever. The Tropical Research Board has developed new techniques for treating amoebic dysentery and other tropical diseases. (See also *Public Health.*)

A syphilis rate of 38 per 1,000 men in the first five months of 1942 was the lowest in Army history. The gonorrhea rate is sinking to negligible proportions through the use of sulfa drugs and penicillin. In the last war the ratio was 107 per 1,000 soldiers. (See also *Public Health.*)

The Army is served by six specialized corps—medical, dental, veterinary, administrative, Army nurse, and sanitary corps—all under the direction of Surgeon General Norman T. Kirk. An advisory committee of ranking medical authorities insures that the Army has the benefit of the latest advances in medical science. The American Medical Association, with 121,000 members, is cooperating with the federal Office of Community War Services in formulating national policies in medical affairs.

Air Surgeon David N. W. Grant is in charge of Air Forces medical care.

The Navy's Bureau of Medicine and Surgery, under Rear Admiral Ross T. McIntire, surgeon general of the Navy and personal physician to President Roosevelt, maintains the health of Navy personnel, provides medical and hospital care for the sick and wounded, and trains the medical personnel.

Men of the Hospital Corps include pharmacists and specialists in clinical and dental technology, aviation medicine, photomicrography, physical therapy, roentgenology, first aid, nursing, and bacteriology. They may be found in the amphibious units of the Marine Corps, in the dressing stations of warships, and in submarines.

The Navy Nurse Corps, established in 1908, serves in hospital ships of the fleet, in the naval hospitals and dispensaries, in training schools, at the National Naval Medical Center, and at recruiting and training stations. The flight surgeon and the medical parachutist are recent additions to Navy personnel. Newest of all are those members of the WAVES who will serve as medical officers and technicians.

What the mobile surgical units are to land forces, hospital ships are to sea fighters. They are staffed with expert surgeons and doctors, and their equipment is equal to that of any leading metropolitan hospital. The ships carry specialists in surgery, medicine, eye, ear, nose, and throat, dentistry, physiotherapy, urology, and psychiatry. Lying close in to shore, wounded are transferred to these ships from field hospitals. The equipment for the field hospitals including ambulance, power plant, operating unit, etc. is all carried and supplied by the hospital ship.

Larger naval vessels—battleships and aircraft carriers—have their own complete hospital units. Smaller ones usually depend on the hospital ship. The health of the Coast Guard is taken care of by regular Public Health medical officers who are assigned for duty in Coast Guard stations in the continental United States and outlying territories. Hospitalization for Coast Guard officers and men is usually in Marine hospitals, if any are available near their bases; if no Marine hospital is near enough, regular Navy hospital facilities are used.

HEALTH INSURANCE

Group hospitalization, represented by group insurance plans, is now within reach of millions of Americans. Various private groups and cooperatives throughout the country offer plans which provide medical care and hospitalization for the payment of small premiums. The Blue Cross plans (3¢-a-day-hospitalization insurance) claim a membership of 12 million in 77 groups in 34 states and Canada. Private insurance companies have extended their facilities to cover thousands of industrial workers against the costs of hospitalization, surgical operations, and medical care. Many doctors are cooperating in these group insurance plans by making their services available for small fixed fees.

The Farm Security Administration, working in conjunction with county medical societies in various parts of the country, has insured 105,000 farmers and their families. More than 14 states have developed plans for extending medical services to large numbers of workers. The trend toward medical insurance is particularly noticeable in industrial centers. It is spreading among persons whose incomes are in the lower or middle brackets.

HISTORY

Before the war of 1914-18 American medical students and physicians turned to Europe for post-graduate training. The medical centers at Vienna and Berlin attracted physicians throughout the world. Since the war of 1914-18 American medicine and medical institutions have caught up with and in some instances surpassed European institutions. Today the medical schools of Harvard, Johns Hopkins, and Columbia University are leading educational centers of the world.

American medical progress has been advanced by the introduction of post-graduate study in large hospitals. Doc-

tors who have been practicing for years can return to study for a month or more at a time and through these refresher courses in hospitals keep abreast of the most recent medical developments of the day.

The Presbyterian Medical Center, the New York Hospital, Cornell Medical Center, and Mount Sinai Hospital in New York; the Mayo Clinic, at Rochester, Minnesota, and Johns Hopkins Hospital, at Baltimore, Maryland, are medical institutions unduplicated anywhere.

Research institutions connected with hospitals, medical schools, and industrial establishments have participated in the century's greatest medical discoveries and advances.

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CULTURE

Although as late as 1820 it was possible for the English divine, Sydney Smith, to ask rhetorically, "Who reads an American book, or goes to an American play, or looks at an American picture or statue?" the letters of St. Jean de Crèvecoeur and the writings of Thomas Paine had already injected into the American mind an ideal that was to distinguish the rest of American culture—the ideal of a fuller and larger life for the common man. Already young Americans had a belief in the power of personal righteousness that would make reform and revolt the earmark of the national culture. Even as Dean Smith spoke, the men whose productions would influence continents were growing up. Edgar Allan Poe was then eleven years old, Ralph Waldo Emerson was seventeen, Hawthorne sixteen, and Thoreau three.

The right of every man to knowledge, to share in the development of American culture, is only the natural conclusion to the revolutionary argument that Franklin, Freneau, and Jefferson have left with Americans forever. Books and modern art are sold across the drugstore counter. Sales of volumes on philosophy mount into the hundreds of thousands. The radio, motion pictures, magazines, community orchestras, vast catalogues of inexpensive phonograph records, opera, the free public libraries—these media bring the arts to millions.

It is this common share in American culture that keeps it alive. The moment the native culture turns inward upon itself, its decadence is rejected in the same spirit with which early Americans rejected the lopsided ultra-Puritanism of Cotton Mather. A century and a half later the prose wrath of Harriet Beecher Stowe helped to crystallize the rising tide of feeling against slavery. In this generation a John Steinbeck voices the despair of the earth's dispossessed. The moment the mental civilization crystallizes into rigidity, men like Jonathan Edwards, James Fenimore Cooper, Herman Melville, and Theodore Dreiser come forth to set it into action once more.

If it is younger than the cultures of other peoples, American culture has by now nevertheless made its mark upon the world. Poe's grip upon the imagination so excited Baudelaire that the American genius has come to be known as "the father of modern French poetry." The immigrant, with his dream of democratic fellowship, arrives in America bearing a copy of Walt Whitman's Leaves of Grass. Children all over the world still identify themselves with Huckleberry Finn and Tom Sawyer. Upton Sinclair and Jack London are more popular in Russia today than they are in their native country. The Hollywood movie, enriched by talents like those of Charlie Chaplin and director John Ford, fires imaginations all over the globe.

LITERATURE

The statement of Ralph Waldo Emerson that "the experience of each age requires a new confession" is nowhere so well illustrated as in the body of American letters. Indeed the experience of settling the New World required and got its new confession almost as soon as the first Americans set foot on the continent. John Smith's A True Relation, William Bradford's History of the Plymouth Plantation—these picture the early settlers' first struggles with their new environment. Cotton Mather and Jonathan Edwards posed the problem of relations between church and state, church and individual, and gave the nation's letters a dose of puritanism whose most salutary effects were idealism, restraint, and moral decency, exemplified in the writing of the great New England masters (admittedly, in Victorian times, these qualities were often lost in a sentimental priggishness). In the lonely cabins of the back country, less erudite settlers conquered loneliness by spinning yarns about Daniel Boone, Davy Crockett, John Paul Jones, and other heroes of colonial days. And they made up long ballads about marvelous imaginary characters, marking the beginning of a colorful vigorous folklore. Then the American Revolution brought the writers who formulated the credo of democracy; plain-spoken men, idealistic, filled with faith in their country's future. It is significant that in 1943 Americans are still returning to the origins of their political thought for guidance. Sidney Kingsley's play, The Patriots, with Thomas Jefferson the chief protagonist, was given the New York Drama Critics' award as the best play of the year, and Howard Fast's Citizen Tom Paine was one of the best-selling novels.

Out of literary fashion, but certain of critical revaluation some time, are two notable figures of the early nineteenth century: James Fenimore Cooper and Washington Irving. Cooper's florid novels, influenced by Sir Walter Scott but set in the American scene and peopled by the simple noble savage, the simple noble pioneer, were the first American writings to be widely read and admired by a European audience. Irving was an indefatigable essayist, biographer, historian, who could turn with facility from his Mahomet and His Successors to a Life of George Washington, from a recital of the exotic splendor of the Alhambra in Granada to the droll tale-weaving of The Legend of Sleepy Hollow and Rip Van Winkle.

By the middle of the nineteenth century, American creative writing had come of age. Indeed, living and producing at that time were some of the proudest figures of American literature, and their influence has been powerful enough to reach most corners of the earth. "For genius, all over the world, stands hand in hand, and one shock of recognition runs the whole circle round"—so spoke Herman Melville, author of the great Moby Dick, and one whose complete recognition took long to come. Like Dostoevski, Melville looks into the dark and enigmatic recesses of the human soul; he is not easily understood. That other som-

ber genius of the times, Edgar Allan Poe, was not without appreciation even before his tragic death, and stories like The Gold Bug and The Murders in the Rue Morgue, poems like The Bells and Annabel Lee, are known by every high-school student. But it is undeniable that Poe has had far greater influence on French literature than on American because of his grip on the minds of such poets as Baudelaire and Mallarmé. The year 1855 saw the publication of Leaves of Grass, by Walt Whitman, a book of poems glorifying the experience of the common man, written in exalted, declamatory language that horrified some contemporary critics. Whitman's first defender was Ralph Waldo Emerson, the Transcendentalist master, preacher of the rich mental life, unrelenting foe of materialism. Emerson was unquestionably the dominating mind of his epoch, the American writer most admired at home and abroad. New England's culture was in full flower: the novelist Nathaniel Hawthorne, the critics James Russell Lowell and Oliver Wendell Holmes, the poets William Cullen Bryant and Henry Wadsworth Longfellow, the naturalist Henry David Thoreau, and lastly, the shy recluse poet, Emily Dickinson.

In 1868 appeared Bret Harte's famous story The Luck of Roaring Camp, and its sweeping popularity founded the school of regional, or local-color writers. The westward movement brought forth a native, realistic, and humorous literature, as lusty and colorful as the land itself. It was this Western viewpoint, absorbed when he was a cub reporter in California, that gave rollicking, irreverent humor to Mark Twain's early work, in such books as Roughing It and The Innocents Abroad, although it is his recollections of childhood in the Mississippi steamboat era—in Tom Sawyer and Huckleberry Finn—that have made him beloved all over the world. Arriving considerably later (The Call of the Wild was published in 1903), Jack London wrote of brutal, primitive life in California and Alaska, combining his love of raw adventure with a hatred of social evils. Contemporary California writers include the novelist John Steinbeck—whose early novels, like Tortilla Flat, present fine studies of simple Western folk—and prankish William Saroyan, whose The Human Comedy became a best-seller of 1943.

It is possible to name as one of the first Midwestern writers President Abraham Lincoln, since the homely, moving style of the Gettysburg Address is typical of so much Midwestern writing since. But it was with the grim stories of the Midwestern writer Hamlin Garland—in Main Traveled Roads and Prairie Folks—that American realism first escaped the restraints of the genteel tradition. Garland—like Stephen Crane, Frank Norris, Upton Sinclair, and London—fell under the harsh spell of Emile Zola, and Garland also was a disciple of Henry George, author of Progress and Poverty and a brilliant protagonist of economic reform. Upton Sinclair's The Jungle, exposing the revolting conditions in the Chicago stockyards, horrified the nation, as Harriet Beecher Stowe's anti-slavery novel Uncle Tom's Cabin had in 1851, and as Steinbeck's The Grapes of Wrath, with its account of the Dust Bowl refugees, was to do in 1939.

Another significant date in American literary history is 1900, when Sister Carrie was given to a hostile world, the first of Theodore Dreiser's ponderous but powerful novels. Born in Indiana, it was in Chicago that Dreiser found kindred spirits; that city was, from 1890 to 1920, a vigorous literary capital, especially in the increasingly important field of journalism. Men like the poet Eugene Field, humorists George Ade and Ring Lardner, novelist and scenarist Ben Hecht, got their starts on Chicago newspapers. There during many of his creative years lived Sherwood Anderson, who brought out in 1919, Winesburg, Ohio, a startlingly original collection of short stories. Chicago also claimed three poets whose works are infused with love for their region: Vachel Lindsay, who invented folk tales with a jingling, syncopated melody; Edgar Lee Masters, whose Spoon River Anthology is a series of dramatic monologues in free verse, each one spoken by some person buried in a village cemetery; and Carl Sandburg, who celebrates the machine age and Chicago's explosive energy. The latest literary jolt from the Windy City was James Farrell's Studs Lonigan trilogy, about Irish-American tenement life in Chicago.

Willa Cather's novels of prairie people rank high in American contemporary literature. O Pioneers! and My Antonia portray the conquest of a stubborn soil by the first generation of Swedish and Bohemian immigrant farmers. O. E. Rolvaag has written strong novels of Norwegian pioneer life in the Dakotas. Booth Tarkington, of Indiana, revealed in Alice Adams and The Magnificent Ambersons not only his familiar gift of humorous character portrayal, but the threat of materialism to the national health. This was to be expressed even more trenchantly by the Minnesota novelist Sinclair Lewis in a series of excoriating satires, including Main Street, Babbitt, and Elmer Gantry.

In the South of the desolate reconstruction period, the poet Sidney Lanier grew to maturity. His poetry, rebelling against the commercialism of the times, carries us into the luxuriant marshes and forests of the deep South. But the man who was to do for the South what Bret Harte had done for the Far West was George W. Cable, with his stories, Old Creole Days, and novel, The Grandissimes (1880); his writing was filled with a deep subtropical charm. The South's next important novelists were both to come from Virginia: Ellen Glasgow, who for the last forty years has mirrored in a succession of novels the changes in Southern social and economic life; and the suave ironist James Branch Cabell, whose medieval romances like Jurgen and Figures of Earth comment slyly on actual contemporary life. The past decade has been dominated by a more savage, socially conscious spirit. William Faulkner, of Mississippi, has recreated, in As I Lay Dying and Sanctuary, the life of the poor white, with not one gruesome, morbid detail omitted. Georgia's Erskine Caldwell portrays these same people in Tobacco Road and God's Little Acre, with an occasional leavening of humor. The late Elizabeth Madox Roberts possessed deep poetic feeling, and her novel The Time of Man, about the Kentucky hill folk, will not soon be forgotten. Today the South possesses perhaps the most fertile school of regional writers. Among them should be named novelists Julia Peterkin and Marjorie Kinnan Rawlings, Stark Young, T. S. Stribling, and Roark Bradford; the poet and historian Allen Tate and his wife, the poet-novelist Caroline Gordon; the short-story writers Katherine Anne Porter and Eudora Welty; novelists Carson McCullers and Robert Penn Warren. Gone With the Wind, the most sensationally popular novel of this era (it has sold nearly three million copies), was the first novel of its author, Margaret Mitchell, native of Atlanta, Georgia.

Within the past twenty years, the serious Negro writer has been coming into his own. During the 1890's the dialect poems of Paul Laurence Dunbar attained great popularity, but they added nothing to an understanding of his race. Far more authentic as literature are the anonymous words to countless spirituals and blues. The Negro writers of today approach the problems of their race with seriousness and integrity. Americans admire the finely felt poems of Langston Hughes, Countee Cullen, and the late James Weldon Johnson. One of the most discussed novels recently has been Richard Wright's Native Son, the story of a somber tragedy generated in the crowded Negro slums of an American city. In 1943, Roi Ottley's New World A-Coming

won a $2,500 literary prize; it is the dramatic history of Harlem from the earliest days down to the present war.

To the names of modern poets already mentioned, should be added others. Edwin Arlington Robinson was, until his death in 1935, the most distinguished figure in American poetry. This retiring New Englander shared with Robert Browning a quality more frequent among novelists than among poets—an intense curiosity in regard to human nature. Descendant of New England's poets of nature and common life is Robert Frost. He can turn from hauntingly delicate lyrics to subtle regional portraiture. Edwin Markham's long poem The Man with a Hoe, symbol of the downtrodden, has been called the "battle-cry for the next thousand years." Outstanding among modern American women poets are the late Elinor Wylie, who left behind her many exquisitely wrought lyrics, and Edna St. Vincent Millay, whose rapturous melodic gifts have brought her a following unequalled by any woman poet since Elizabeth Barrett Browning. Drenched in American legends and traditions, though expressing love of their native land in widely varying techniques, are the late Hart Crane, with his long poem The Bridge, often obscure but with magnificent vaulting lines; Archibald MacLeish, with New Found Land and Conquistador, metaphysical explorations of the American earth; and the late Stephen Vincent Benét, whose John Brown's Body, a modern epic poem on the American Civil War, won him a Pulitzer Prize.

The first of the American expatriate writers was the novelist Henry James, who lived most of his creative life in France and England, writing fiction filled with the most minute psychological shadings and constructed with a skill hitherto unknown to American novelists. Edith Wharton, James's acknowledged disciple, also chose to live most of her life abroad; in novels like The House of Mirth and The Age of Innocence, she portrays aristocratic New York society in the latter nineteenth century, but her finest achievement is perhaps Ethan Frome, a tragedy of the bleak New England countryside.

America's most distinguished expatriate today is T. S. Eliot, who has made England his permanent home. His long poem The Waste Land reflects the intellectual pessimism of the postwar generation, as does Ernest Hemingway's novel The Sun Also Rises. Hemingway, the most famous of the Montparnasse expatriates, has long since returned to America.

Always alternating periods of wandering in Europe and the Near East with intense study of the American scene, John Dos Passos covers in his U. S. A. trilogy thirty years of recent American history. His startling technical innovations—such as his use of newspaper headlines, movie flashbacks, and the "camera eye"—have left their imprint on the American novel.

As the daughter of missionaries, and herself for many years a teacher in China, the Nobel Prize winner Pearl Buck might rather loosely be termed a former expatriate. Novels like The Good Earth and The Mother have given her readers an intimate understanding of the Chinese people; at the same time they are typical of the main stream of American literature in their immense sympathy with common humanity.

Three centuries of American civilization have carried the people from the austere colonial culture, through the frontier experience, the machine age, and the advance of science, to a vastly expanded and infinitely more complex life. Americans are fortunate in having historians like James Truslow Adams, S. E. Morison, Charles A. Beard, Henry Steele Commager, Allan Nevins; biographers like Carl Van Doren, Douglas Freeman, Carl Sandburg; philosophers like William James (1842-1910), John Dewey, George Santayana; critics like H. L. Mencken, Stuart Sherman (1881-1926), Van Wyck Brooks, Edmund Wilson. These are men who constantly stimulate and complement America's poets and novelists.

The old flamboyant tradition of journalism has given way in this war to a new school of reflective, informed, and informing reporters of history in the making. Among them may be mentioned Vincent Sheean, John Gunther, William L. Shirer, Ira Wolfert, Ernie Pyle, W. L. White—there are countless others whose names belong on the honor list. Some of America's fighting men have already set down their experiences in books that combine incredible heroism with a complete absence of heroics. The war against facism is waged on all literary fronts—by novelists in books like Sinclair Lewis's It Can't Happen Here, Ernest Hemingway's For Whom the Bell Tolls, and Pearl Buck's Dragon Seed; in poems like Edna St. Vincent Millay's The Murder of Lidice; in radio plays by Archibald MacLeish and Norman Corwin; in the theater with such plays as Lillian Hellman's Watch on the Rhine and Maxwell Anderson's The Eve of St. Mark; in the political commentary of Raymond Clapper, Dorothy Thompson, Samuel Grafton, Walter Lippmann, Herbert Agar, and others.

BOOK PUBLISHING

It is estimated that 225 million books are bought annually in the U. S. In 1942, the distribution of titles was as follows: fiction, 1,663; non-fiction, 6,998; juvenile, 864; total, 9,525. The preponderance of non-fiction reflects the interest of the American public in acquiring information, a trend further stimulated by the war. At least 700 technical and military books appeared in 1942. In the first seven months of 1943, out of 5,015 titles, 307 were juveniles, 891 were fiction, the other 3,817 were non-fiction of various kinds.

Many colleges and universities have their own printing presses whose function is to publish "books that represent a distinct contribution to scholarship." Largely unhampered by commercial considerations, the university presses are able to publish books that commercial publishers cannot afford to. Scientific and historical research and doctors' theses make up a large part of the work of the university presses. Frequently, however, university publications reach a wider audience, as in the case of Thurman Arnold's The Folklore of Capitalism, which became a best-seller. Regional works, such as Rupert Vance's Human Geography of the South, are another important aspect of university publishing.

Books, more especially fiction, often appear in magazines before they are published as books. The most widely read books are often syndicated in newspapers, after publication, and also adapted for the movies.

BOOK DISTRIBUTION

A new method of book distribution began in the twenties with the advent of the book clubs. There are minor variations among the different clubs but in general, members agree to buy four books a year from among those selected by the club. Thus any book which is selected by a club is reasonably sure of fairly wide distribution. The oldest of these has distributed approximately 33 million books since it began and its membership in the fall of 1943 was about 600,000.

The cheap paper-covered editions long popular in Europe did not achieve wide distribution in America until recently, but pocket-size twenty-five-cent reprints may now be found in drugstores, subway platforms, and corner newsstands.

Pocket editions of popular books are now being provided for men in the armed forces by the Council on Books in Wartime, under the name of Armed Services Editions. Thirty titles a month were issued beginning September 1943;

40,000 of these are sold to the Army, 10,000 to the Navy. The books are then distributed to the men overseas without charge.

LIBRARIES

Free public libraries are maintained by the federal, state, and municipal governments. There are 106,000,000 books in public libraries throughout the country, with a total annual circulation of 500 million volumes, serving 26 million borrowers. College and university libraries contain another 63 million volumes.

There are 16,265 institutional libraries in the United States, divided as follows:

School libraries of more than 1,000 volumes	6,400
College and university libraries	1,600
Community libraries	6,500
Special libraries in technical and professional fields	1,500
State libraries	135
Federal libraries	130

The Library of Congress in Washington has more than 6 million volumes. New York City has one of the largest public libraries in the country, with 4 million books and an annual expenditure of 3 million dollars. In general, community libraries carry from 50 to 55 percent of their stock in non-fiction. The remainder is divided between fiction and juveniles.

The activities of American libraries are manifold. They work with schools, reach the immigrant in his own language, build up collections, offer lecture courses, have war information centers all over the country. The U. S. Office of Education has a Library Service Division, which does research work in the field of librarianship, helps coordinate present facilities, and encourages library participation in adult education.

State libraries serve rural districts by lending books through the mail. There are also traveling libraries, housed in trucks, which call regularly at rural homes and schools. The Library of Congress helps stock the shelves of 26 libraries which distribute books in Braille to the blind. Prison libraries, maintained by the Bureau of Prisons, are part of the educational system conducted in all federal penal institutions. Many public libraries have branches in hospitals, jails, factories, and municipal recreation centers.

Catering to the popular taste in current books, mostly fiction of the lighter type, are more than 6,000 rental libraries, otherwise known as lending or circulating libraries. Located in the shopping districts, these modest commercial enterprises maintain a limited and ever-changing stock of recent titles which may be borrowed by paying a small fee.

ART

In the making of a civilization from a savage wilderness, colonial Americans found little enough time to pursue the visual arts. It is surprising then to find in America's earliest history a few artists—"limners" as they were called—coach painters and artisans who dabbled on the side in portraits of local personalities and families. As in every phase of the nation's culture, these primitive paintings show the influence of the lands from which their makers came; the English and Dutch schools are well represented. But the American scene was not long in making itself felt. It is interesting to note in the works of one John Smibert the first native "landskip," and in the portraits of the vagabond artist Robert Feke a growing emphasis on character instead of the fripperies of dress.

Farther along in the eighteenth century, when the savagery of nature was somewhat tamed, the conditions for producing an American art improved. The tools became available, rich and tractable patrons appeared on the scene, and with a slight tradition of artistic effort for inspiration, the native painter could go to work. A Quaker émigré to England, Benjamin West, produced important historical paintings with American background and an impeccable orthodoxy that made him President of the Royal Academy. His pupil, John Trumbull, turned out heroic Revolutionary scenes. And in the tranquil and lucid portraits of John Singleton Copley, the striking characterizations by Gilbert Stuart, American art definitely came of age.

In the middle years, when the nation was growing at a fantastic rate, more and more Americans flocked to the easel. The portrait continued its popularity; men like the distinguished scientist Samuel F. B. Morse, like Thomas Sully and John Neagle, made vivid canvases of the senatorial firebrands in the grand manner that was the order of the day. Men of art began to take notice of and to utilize the sweeps of American land and sea—Audubon's striking paintings of wild life, John Vanderlyn's romantic landscapes, the work of the Hudson River School, of which George Inness and Ralph Blakelock were the finest outcome, and the popular prints of Currier and Ives. The finest American genre painters, George Bingham and William Sidney Mount, who were painting in that same period, are now being excitedly rediscovered by the contemporary art world and being given important shows. During their generation, the local color of the frontier found its way into art as well as literature. These first canvases were often saccharine and sentimental, but the expanding country wanted just such reminders of home scenes.

During the gilded age that followed the Civil War, and until after the turn of the century, there worked a serious group of painters who were to open doors to vigorous and peculiarly American new points of view. Winslow Homer's powerful seascapes, the honest probing directness of Thomas Eakins, the brooding imagination of Albert Ryder, were peculiarly native and were invigorating contrasts to the tepid academic output that seemed then best to satisfy popular tastes. Meanwhile American expatriates—the brilliant society painter John Sargent, the impressionists James Whistler and Mary Cassatt—were making America aware of modern European schools.

The radicalism, the urge for reform, that permeated the American mind in the first decade of this century was not long in affecting the nation's art. The so-called "ash can school"—which included Robert Henri, William Glackens, George Luks, and John Sloan—took for its subjects the contemporary life in the streets, crowded tenements, saloons, and backyards, and found there vitality and gusty humor. George Bellows, a younger member of this group and perhaps the most talented, made the prize ring the subject of many exciting canvases. The color of the American street scene is still being transferred to canvas by men like Reginald Marsh, Raphael Soyer, Guy Pène du Bois, William Gropper, and the much younger Paul Cadmus. And the American landscape in a curiously exact American sense is now depicted in the work of Edward Hopper and Charles Burchfield.

With the Armory Show of 1913, the United States experienced a tremendous esthetic shake-up. The revolutionary experiments of Cézanne, Matisse, and Picasso came into vigorous collision with academic art. American artists plunged into abstractionism, cubism, and impressionism.

Many fell by the esthetic wayside but those who have survived have managed a triumph of transmutation. There is no question that a Stuart Davis abstraction seems no more derivative than an Ozarkian anecdote from the brush of Thomas Benton. The poetic vision of water-colorist John Marin, the economy of Charles Sheeler, the booming style of the late Marsden Hartley, are certainly American in essence.

So contemporary artists have divided into many schools, with perpetual and healthy quarrels. Iowa's late Grant Wood, John Steuart Curry of Kansas, Thomas Benton of Missouri, speak for regionalism and nationalism. The late John Kane, Pittsburgh mill hand and sign painter, produced powerful primitive canvases of his city. There are romantics like Alexander Brook and Kuniyoshi; there is the unmannered masculine sincerity of Henry Varnum Poor and Henry McFee; the gay folksiness of Doris Lee; the realistic honesty of Eugene Speicher; the wry line of Peggy Bacon; and the vast metaphysical blooms of Georgia O'Keeffe.

Sculpture had a slower and harder pull in the U. S. After the middle of the nineteenth century, however, men like Saint-Gaudens and George Grey Barnard began to evolve a more American technique. With Paul Manship's innovations, Jo Davidson's virile portraits, the marvelously fluid line of the late Gaston Lachaise, the vitality of Jacob Epstein's sculptures, sculptors of today have brought American sculpture to a high creative level.

ARCHITECTURE

Although there are some critics who lament that much of American architecture is still imitative of European schools and complain that many American buildings look as if they were stolen from the Greeks or Romans, most students feel that American art has made its most original contribution in architecture. Even from the beginning of the eighteenth century there appeared in structures of wood and brick and stone, in village church and country manor, an emphasis on functional simplicity. Decoration was subordinate to the essential structure. In the 1840's American architecture entered upon an era of Italian villas, French chateaus, Renaissance palaces, and Gothic cathedrals. Decoration and imitation supplanted honest design. It was the work of Henry H. Richardson in the 1870's and 1880's that infused fresh life into the American tradition. Using stone masonry and a modified Romanesque tradition in the many important public buildings which he designed, he renewed the tradition of simplicity and structural integrity. His influence was profound, and before his death in 1886 he had become the leading American architect.

It was the same tradition of simplicity and structural integrity that Louis Sullivan used during the 1890's when the steel-skeleton structure made its first appearance. The use of steel for the framework permitted new forms and proportions to which the architecture of earlier masonry construction was not suited. Sullivan developed many of the basic structural and design techniques appropriate to the skyscraper, which is America's unique contribution to architecture. His influence will be found in even the most recent of American skyscrapers, such as those designed by the late Raymond Hood, and in the magnificent group that makes up Rockefeller Center, in New York City.

But it is not merely in skyscrapers that modern American architecture declares itself in terms of functional design. It is in the vast industrial plants, scattered throughout the U. S., that American architecture has best and most widely expressed itself during the last decade. Here will be found the particular influence of Frank Lloyd Wright, a disciple of Sullivan's, whose work began in the first decade of this century and has covered a period of thirty years. It is in these industrial structures that the building becomes appropriately enough a machine in itself, designed and proportioned to its particular use. Although functional design in private dwellings has been far from general up to now, its widespread appearance in the near future seems likely with the development of prefabricated housing.

ART GALLERIES

There are 224 public art museums in cities throughout the United States. Lectures and guided tours often are offered in connection with public exhibits.

The National Gallery of Art in Washington owns an excellent collection of paintings by old European masters, a varied representation of Italian Renaissance sculpture, and examples of the portrait painters of Britain and of colonial America. The 15-million-dollar building was erected with funds given by Andrew W. Mellon. He also gave it his private art collection of 126 paintings and 24 pieces of sculpture. Among the other important collections are the Kress (Italian painting and sculpture), the Widener, and the Chester Dale (nineteenth-century French).

The Corcoran Gallery of Art in Washington is particularly representative of American artists, and includes also a large collection of original marble and bronze sculpture, as well as antique and Renaissance reproductions.

The Metropolitan Museum of Art, New York City, is now the storehouse of some of the world's greatest treasures. It has examples of ancient Egyptian, Greek, Roman, and Near Eastern art; Japanese and Chinese sculpture, jade, and porcelain; medieval arms and armor; and European masterpieces of painting and sculpture of all schools, as well as decorative arts. American painting, however, occupies more gallery space than any other. The Whitney Museum's collection of American art has recently been given to the Metropolitan; after the war a special wing will be built to exhibit it.

The Cloisters, a branch of the Metropolitan Museum located in Fort Tryon Park, high above the Hudson River, houses medieval art. Incorporated in the new building, which is in the Romanesque style, are several medieval cloisters from Europe. Here are the famous Gothic tapestries depicting The Hunt of the Unicorn.

The Museum of Modern Art in New York City is devoted to modern painting, sculpture, architecture, graphic art, industrial design, photography, and motion pictures. It circulates exhibitions to museums, colleges, and other institutions throughout the country. It has popularized the work of European and Latin American artists, and has sent traveling exhibits of American art and photographs to other countries. Believing that modern art is an essential part of the democratic life we are fighting for, the Museum of Modern Art has conducted several successful poster competitions with such slogans as "Twenty-one Republics—One Destiny." Perhaps most impressive of all in this connection was an exhibition called "Road to Victory," which showed by immense photographic enlargements, the heritage, the daily life and work, and the fighting power of the U. S. The Museum of the City of New York and the New York Historical Society both feature Americana.

Other outstanding public collections are those of the Chicago Art Institute; the City Art Museum of St. Louis; the Kansas City Museum; the Toledo Museum; the Minneapolis Museum; the Brooklyn (New York) Museum; the Philadelphia Museum of Art; and the Boston Museum of Fine Arts. Many public museums have been enriched from time to time by the gift of entire private collections; and several collections assembled by private individuals, such as the Frick and Bache collections and the Pierpont Morgan Library in New York City, are maintained in individual buildings open to the public.

MUSIC

In the early years the Virginian and Carolinian backwoodsmen sang ballads and carols that they brought with them from the old country, and these songs may still be heard in the rural regions of the South, passed on by oral tradition. One of America's earliest original folk ballads is the Chieftain's Daughter, which tells about the kidnaping of a white maiden by the Indians. Since then there have been lyrical narrations of anything that might be called headline news. Tomorrow American balladists will probably recount the exploits of the AAF over Berlin. To preserve this rich musical tradition that might otherwise be lost, the Library of Congress has commissioned musicologists to tour the hill countries and backwoods to record it.

Another type of song that the American made up as he drove deeper into the wilderness—as he shucked corn, herded cattle, built railroads and canals, and panned gold—was occupational in nature. The cowboy's rhythmic yells to stir up lagging cattle or his lullabies to quiet the restless herds at night or his plaintive melodies that helped pass the long evenings away, have become an important part of American folk music—Git Along Little Dogey, Lone Prairie, and others. The lumberjack's Shanty-Boy ballads, the gangworker's I Been Workin' on the Railroad, and the canaler's Low Bridge Everybody Down—all these fall into the same class.

The Negro has been a very important contributor to America's library of folk song. His religious feeling led him to adapt the hymns of the white people in the form now known as Negro spirituals. Such spirituals as Swing Low Sweet Chariot, Nobody Knows de Trouble I See, Roll, Jordan, Roll, reflect the melancholy of his life. However, it was the imperishable gaiety of the Negro that inspired, about 1830, a uniquely American type of entertainment, the minstrel show—with its black-face comedians. Dan Emmett, the most famous of these white minstrels, wrote Dixie for his show.

Minstrelsy also gave America one genius, Stephen Foster (1826-1864), whose music made its mark on the songs of the next hundred years. His simple, beautiful, and sincere Old Kentucky Home, Jeannie With the Light Brown Hair, Swanee River are known to all Americans.

From the Negro came still another American musical form—the blues. W. C. Handy, the Negro composer, adapted this form to the concert stage. Negro band leaders like Duke Ellington brought the blues to the attention of a growing public.

Music as a serious art form has developed slowly in America. Almost every year one of the nation's opera companies presents at least one American opera—among them have been Victor Herbert's Natoma, Deems Taylor's The King's Henchman, and Louis Gruenberg's Emperor Jones—but few have had the vitality to survive more than one season. A modern opera called Four Saints in Three Acts, with a libretto by Gertrude Stein, music by Virgil Thomson, and sung by an all-Negro cast, ran for some weeks in a Broadway theater and attracted critical favor. Marc Blitzstein's proletarian opera, The Cradle Will Rock, presented without aid of scenery, had a good deal of popular success. The jazz composer George Gershwin wrote Porgy and Bess, an opera on Negro life, which shows signs of an enduring hold on the public. American composers of popular music have also distinguished themselves. Many of the songs of Victor Herbert, Jerome Kern, Cole Porter, and George Gershwin are as fresh today as the day they were written.

In the 1943 season the score of Richard Rodgers' Oklahoma has the spontaneity of folk music and doubtless will keep Americans singing its songs for years. Musical comedy, which was developed on a lavish scale by the late Florenz Ziegfeld, Earl Carroll, and others, is always popular on Broadway (see *Theater*). During the last three decades promoters have vied in showmanship, spending millions of dollars for spectacular sets, lighting, moving stages, showgirls, and talent. But no show has ever been a hit, regardless of cost, without good music and lyrics.

The first American composer was one of the signers of the Declaration of Independence, Francis Hopkinson; his melodies for the harpsichord revealed a pleasant amateur talent. The first American to make composing his profession was the eccentric William Billings (1746-1800), whose most famous tune was Chester, the Over There of the American Revolution. Since the time of Billings, America has admittedly developed more slowly in the field of serious music than in literature and art. The more ambitious symphonic work of American nineteenth-century composers is all but forgotten. Too many of them borrowed from the great European masters without instilling anything that could be called American. It was the Czechoslovakian composer Anton Dvorak who revealed to America, in his New World Symphony, the wealth of folk material waiting to be used. Edward MacDowell (1861-1908) was one of the first American composers to use the American scene. American ragtime and jazz fascinated such modern European composers as Stravinsky, Ravel, and Milhaud, and at home produced a spectacular symphonic work in George Gershwin's Rhapsody in Blue, composed in 1924, and still one of the most performed of American orchestral works. Ernest Bloch and the late Charles Martin Loeffler are two European composers who found inspiration in their adopted country. Charles Ives has attempted to translate New England into music, and Roy Harris, one of America's best known symphonists, reflects the large vigorous spirit of the frontier. Aaron Copland, whose most recent work is the score for the ballet Rodeo, has made brilliant use of jazz formulae; he is one of America's most distinguished composers. Henry Cowell, Roger Sessions, Walter Piston, Douglas Moore, Randall Thompson, and William Schuman should be included in the list of young American composers today who command respect from the musical world.

America's music, like practically all phases of her culture, is accessible to everyone. Music-teaching—including instrumental and choral work—is a recognized part of the educational system. That the caliber of these young musicians' training is high is indicated by Leopold Stokowski's recent establishment of an American Youth Orchestra. The United States supports 16 major orchestras, and about 250 other symphonic groups. Conductors like Toscanini, Koussevitzky, and Rodzinski bring exacting standards to their leadership. Outdoor summer concerts—at Lewisohn Stadium in New York, Robin Hood Dell in Pennsylvania, Tanglewood in Massachusetts, Hollywood Bowl in California—draw vast crowds. Recordings are made constantly by the outstanding orchestras, and albums are available to the public at low rates or through free lending libraries. Nowadays several societies specialize in collecting and sending gifts of recorded music to the armed forces. Regular radio broadcasts of the performances of the great national orchestras almost daily bring fine music within the reach of tens of millions of Americans.

Opera, produced at first exclusively in New Orleans, has since been popularized throughout the country. New York's

Metropolitan and Chicago's Civic Opera have long winter seasons, while the opera companies of San Francisco and Los Angeles perform for shorter periods. The Metropolitan broadcasts its Saturday afternoon performances, and after the war will resume its long spring tours. Choral music flourishes everywhere, particularly in localities with large Czechoslovakian and Germanic populations. Musical festivals, too—the Chautauqua and Bethlehem's Bach Festival, to name only a couple—also serve as an outlet for the nation's musical expression.

THE DANCE

Just as the peculiar American environment has marked the nation's literature, music, and art, so it has from early years made for a unique American dance. In the minuets that early colonists danced were the beginnings of square dances and reels, the clogs and tap dances which have become a dominant art form in the dancing of Fred Astaire. Dances like the cakewalk, the Charleston, shag, and lindy hop have expressed the changing spirit and times of the American people.

When they have turned to the more traditional dance forms, Americans have given them new life and vigor. In the middle of the last century, the Austrian ballerina Fanny Elssler toured the country, arousing in American hearts the first pangs of love for the classical ballet. Not long afterward an American woman, Augusta Maywood, had the honor of being made a ballerina of the Paris Opera. But it was Isadora Duncan, one of the most original American geniuses, who, inspired by Greek friezes and the poems of Walt Whitman, became perhaps the greatest single influence on the dance. Acclaimed by millions in her world-wide tours, her work was a tremendous inspiration to Russian choreographers and caused the discard of hidebound conventionality in the Russian ballet. A contemporary of Isadora Duncan's Loie Fuller, who was known as the "Fairy of Light," created the Serpentine dance and made history with her revolutionary experiments in stage lighting. Today the Ballet Theater and Ballet Russe de Monte Carlo have long tours throughout the country and extended New York seasons; their casts include a large number of young American dancers. Indeed the ballet has become so much a part of American life that today Broadway—which once scorned the ballet as hopelessly highbrow for popular consumption—is constantly raiding the major ballet companies for dancing and choreographic talent. Agnes de Mille, the brilliant young American choreographer who created the dances for the Ballet Russe de Monte Carlo's Rodeo, is responsible for the exciting dream sequence in the current Broadway rage, Oklahoma.

In America's modern dance, the influence of Isadora Duncan exerted itself most powerfully, and she will perhaps always be regarded as America's great pioneer. Ruth St. Denis and Ted Shawn utilized the folk rhythms of other countries as well as of their own nation in the Denishawn School, and evolved a technique quite unlike the ballet. Today their themes are being carried to striking new conclusions in the dancing of their former pupils Martha Graham, Doris Humphrey, and Charles Weidman.

THEATER

Although America was occasionally visited by strolling players early in the eighteenth century, it was the year 1787 that was to bring the first play by an American author on an American theme to be produced on the American stage. Royall Tyler's The Contrast also introduced the native character of Jonathan, so long the model for all stage Yankees.

The nineteenth century was all but sterile as far as the American theater was concerned. Henry Wadsworth Longfellow penned a few stilted, wholly undramatic pieces, and Edgar Allan Poe's one play, Politan, proved of no lasting importance. Playwrights like John Howard Payne and George Henry Boker ground out historical drama that was high-flown and self-conscious. The taste of the time was for sentimental melodrama, and the star system was at its height. American actors like Edwin Forrest, Edwin Booth, Lawrence Barrett, Ada Rehan, and Clara Morris, celebrated European players like Macready, Rachel, Salvini, and Sarah Bernhardt toured triumphantly, often in Shakespeare but frequently in the tawdriest of stage fare.

The manager Augustin Daly continually urged men like Bret Harte, William Dean Howells, and Mark Twain to write for the theater, but America's literary artists were reluctant to attempt the unfamiliar form. By the turn of the century, however, the influence of Ibsen was slowly bearing down upon the American stage, and realism was suddenly the rage—provided it was tailor-made for a reigning star. Augustus Thomas, Clyde Fitch, and William Vaughn Moody carried the drama further along, freeing it of its rigid dialogue, its absurd melodramatics, but not producing among them one play that would be worthy of revival today.

The most important date in the modern American theater is 1915. That year a small band of amateurs decided to call themselves the Washington Square Players, and took over a small New York theater for their productions. This organization was to grow into the powerful Theatre Guild, which long ago abandoned repertory and is now represented on Broadway by Oklahoma, the biggest hit in many seasons. The Provincetown Players, formed that same year, have given up the ghost, but they first revealed the revolutionary talent of Eugene O'Neill, a dramatist of larger caliber than any of his native predecessors, and the first American to have his plays internationally acclaimed. O'Neill is a tireless experimenter in dramatic forms, and the mere repetition of the titles of his plays—Anna Christie, Emperor Jones, The Hairy Ape, Strange Interlude, Mourning Becomes Electra—is enough to recall the unique place O'Neill holds in the world's theater. For nearly a decade O'Neill has been silent, engaged on a monumental cycle not yet announced for presentation.

Outside of O'Neill, Maxwell Anderson has probably set himself the most ambitious program among major American playwrights. His poetic dramas—like Winterset, Mary of Scotland, Valley Forge, High Tor, Candle in the Wind—have been courageous, if not entirely successful experiments. His war play, The Eve of St. Mark, with its picture of typical American boys defending Bataan, has been called Anderson's best. Robert E. Sherwood has been a spokesman for democratic ideals in Idiot's Delight and Abe Lincoln in Illinois. Elmer Rice's Street Scene was an outstanding contribution to the realistic theater. Clifford Odets produced exciting proletarian theater with his Awake and Sing, and Waiting for Lefty, but has not been heard from in the past few seasons. Lillian Hellman has shown herself to be socially conscious and a brilliant craftsman with The Little Foxes and Watch on the Rhine. Thornton Wilder has re-

vealed a restless, witty imagination in Our Town and The Skin of Our Teeth. Philip Barry and S. N. Behrman share honors as the foremost writers of social comedy. The farces of George S. Kaufman, generally written with a collaborator, are caustic, cynical, tremendously popular; The Man Who Came to Dinner and You Can't Take It With You are typical. Clare Boothe's The Women, in which the author did not spare her sex, had long runs in many countries.

The star system has considerably declined. Favorites like Katharine Cornell, Helen Hayes, the Lunts, Judith Anderson, Katharine Hepburn attempt to find plays worthy of their talents, rather than the old-fashioned star vehicles. Unfortunately, America has not succeeded in keeping alive a permanent repertory theater. Eva Le Gallienne made a brave effort with her Civic Repertory Theater, and the Federal Theater, supported by the emergency relief program of the Work Projects Administration, put on performances of high caliber, introducing, among others, Orson Welles as a potent stage force. Ballad for Americans was also written for a WPA production. During the summer, in peacetime, the East coast is dotted with scores of summer theaters, trying out new plays and reviving old ones. The Little Theater movement failed to survive the 1920's, but springing from it were the Pasadena Playhouse, the Dallas Theater, Chicago's Goodman Theater, and the Cleveland Playhouse, non-commercial groups of loyal following, tapped often by Broadway and Hollywood. American colleges have vigorous drama departments, with classes in playwriting, stage design, and acting. In them are presented the classics from Aeschylus to O'Neill, and recently some plays destined for Broadway have been turned over to an up-and-doing college drama department for preliminary try-outs.

American theater has geared itself to war. Its current plays carry on the war against fascism, interpret the nation at war, or serve as dramatic statements of war aims and ideals. In the summer of 1943, plays like The Eve of St. Mark and Tomorrow the World pictured the fight against the enemy. Soldier spectacles like This Is the Army and Moss Hart's Army Air Forces show, Winged Victory, serve as tremendous morale-builders as well as fund-raisers for the war relief agencies. Playwriting contests for servicemen like the recent The Army Play by Play not only uncover new talent, but present an incentive and a method of expression for the articulate warrior; to the various soldier dramatic companies, the prize-winning scripts present new and timely works for production.

As a more direct and highly courageous contribution, the people of the American theater have volunteered their time and talents to entertaining troops at home and abroad. Actors, actresses, dancers, singers, comedians, acrobats journey to the many battlefronts, as well as the domestic camps, under USO sponsorship. Many of them are facing serious hardships and dangers in order to bring some share of relaxation to U. S. fighting men. Englishman Maurice Evans, captain in the U. S. Army, has left the stage for the duration to serve as dramatic coach and producer for American troops in Hawaii. In the Red Cross clubmobile project, thousands of the theater's lesser talents bring gaiety and glamour to the bleakest outposts.

Through its own organization, the American Theater Wing, the theatrical world has found some twenty-eight ways in which to serve the United States forces on the home front. To its eight famous Stage Door Canteens come America's most distinguished stars—to entertain and wait upon men in uniform. By their personal example and rally speeches, they send war bond sales soaring. Journeying to war plants at lunchtime, they provide relaxation for war workers. Servicewomen are invited to teas and dances. Troupes of entertainers visit the wounded in hospitals. Four speakers' bureaus help along the campaigns of the work of war relief agencies with plays, skits, and informal talks. In all, some 35,000 active members are utilizing many kinds of theatrical talents in the home-front war.

Amateurs—particularly members of college groups—also do their part. With their versions of Broadway shows and their own original plays, they visit camps and war plants to entertain both civilian and military fighters against fascism.

* * *

EDUCATION

HISTORY AND BACKGROUND

Universal free education has always been an American ideal, both because equal educational opportunity means equal opportunity for self-development, and because only literate people can properly govern themselves in a democracy. This ideal is constantly drawing nearer to complete realization. The importance of education in a democratic system was recognized from the earliest days. Harvard College was founded in 1636 by act of the colonial legislature. In 1647 the Massachusetts Bay Colony gave the present American school system its first legal basis by requiring every township of 50 or more to hire a schoolmaster to be paid by the inhabitants. Three years later Connecticut required parents and masters to teach their children reading and a knowledge of the laws.

The principle of free public education was widely accepted, but since the colonies were usually too poor to pay for schools out of taxation, parents able to do so were required to pay tuition; poor children, however, were admitted free to many colonial schools.

Colonial education reflected the Puritan preoccupation with religion. Elementary schools taught reading, writing, and religious principles. Secondary schools concentrated on Latin, and usually sought to prepare boys for Harvard or Yale, which were at that time dominated by the church. The most important contribution to public education came with the Land Ordinance of 1785, which set aside from the public lands one section in every township for the maintenance of public schools. Subsequently, the federal government made millions of additional acres available for agricultural and industrial education.

From the inception of the republic to the Civil War era, the principle that the people as a whole should be taxed for education steadily gained ground. In general, the states accepted responsibility for educating the poor; but only in a few cases was money for elementary schools raised by a general property tax. Such funds were more often raised by tuition fees or by assessing the pupils' parents. Usually fund-raising and administration were in the hands of a local committee or school society.

The work of Noah Webster, "schoolmaster to America," is a landmark in U. S. educational history. His Grammatical Institute of the English Language, published in 1784, remained in use for a century. Sixty million copies of his famous blue-backed spelling books had been printed by

1890. Webster advocated teaching U. S. geography, history, institutions, government, and the principles of American democracy.

As states and localities accepted the principle of maintaining educational institutions with public funds, the rate or assessment system, tuition fees, and separate pauper schools were generally abolished. State standards for the examination of teachers were established. The office of state superintendent of schools was set up. The idea that education should be compulsory lagged behind the idea that it should be free, but state after state began to pass compulsory school-attendance laws.

Horace Mann, one of America's foremost educational statesmen, contributed greatly toward these developments. Leaving a brilliant career in law and politics, he sponsored an act setting up a State Board of Education in Massachusetts, and in 1837 became its secretary. By his efforts Massachusetts doubled its school fund, built new and better schoolhouses, raised teachers' salaries, improved teaching methods, and set up high schools and normal schools. As his influence spread, other states fell into line.

The nineteenth century also saw free education extended to Negroes and women. After the Civil War, schools were provided for Negroes, and in the late 1800's girls generally attended secondary schools. Women's colleges with high academic standards were set up and women were admitted to state universities.

The twentieth century has brought development of the science of education, now taught in widely established teachers' colleges; introduction of industrial arts, physical training, and many other subjects into secondary schools; special attention to superior and to handicapped children; extension of kindergarten, nursery school, and other work with children of preschool age; acceptance by the school of responsibility for children's health; and more stress on vocational training and guidance. The democratic principle of equal opportunity has been further extended through provisions for free textbooks and, in many school districts, free lunches.

Free transportation, now provided in most states, has greatly improved educational opportunities in rural districts although the situation in some states is still far from good. The "little red schoolhouse," a small district school where one teacher taught every grade (in 1940 there were 113,600 one-teacher schools; in 1930, 149,282) has in many districts been replaced by well-staffed modern buildings to which children come from many miles around. More than four million rural children receive free school-bus transportation.

This continual democratization of education has greatly reduced the number of persons over ten unable to read or write in any language.

EXTENSION OF SECONDARY AND HIGHER EDUCATION

An educational goal toward which America is moving is that of providing every child with a secondary-school education. Since 1900, the percentage of youths between 14 and 17 enrolled in full-time high schools has increased from 11 to 73 percent. Ninety percent of these secondary schools are publicly maintained.

Extension of secondary-school education has led to a fundamental change in the concept of a high school's proper function. Formerly, American high schools were principally college-preparatory institutions. Now they offer to students who do not plan to attend college a well-rounded course of study including vocational training and preparation for democratic citizenship, as well as a sound cultural grounding.

Higher education has also become more widespread. In 1900 there were approximately 500 American colleges (not including 278 normal schools); now there are three times that number, and college enrollment has increased eightfold.

The average man selected for military service in 1940-41 had three or four years more schooling than his counterpart of 1917-18. More than half the present group of selectees attended high school; eight percent of them attended college from one to four years. In 1940 there were 3,930,000 living college graduates in the United States, and 21,070,000 additional living high-school graduates.

NUMBER OF SCHOOLS

Of the more than 240,000 schools in the United States, more than 90 percent are public institutions. A breakdown follows:

	1940
Public elementary and secondary schools (including kindergartens and about 25,600 secondary schools)	223,295
Private elementary schools	11,306
Private high schools	3,568
Universities, colleges, and professional schools	1,751
Public residential schools for the handicapped	281
Private residential schools for the handicapped	94
Private commercial schools (estimated)	2,099
Schools for nursing	1,391

SCHOOL ATTENDANCE

About one person in every four was enrolled in a school or college in 1941-42. There were nearly 21 million children in elementary schools, including practically every child over six years. There were over seven million in high schools, and one and a half million in colleges, universities, and professional schools.

The average American child begins school at the age of six, and completes the 6th grade when he is 11 or 12. Since school attendance is compulsory in every state, and since no state requires less than six years, this means that nearly every child is receiving at least a grade-school education. (In some states, compulsory education laws are not well enforced.) Most states require at least 10 years, taking the pupil through the 10th grade, or all but the last two years of high school.

DIVISION BETWEEN ELEMENTARY AND SECONDARY SCHOOLS

Traditionally, grade-school education continues through the 8th grade, while secondary-school education begins with the 9th and continues through the 12th. Many educators, however, believe that children between the ages of 12 and 14 should receive special attention. Many communities, therefore, maintain separate junior high schools which include the 7th, 8th, and 9th grades, while senior high schools include the 10th, 11th, and 12th.

FINANCIAL DATA

Total investment (buildings, equipment, endowments) is more than 14 billion dollars. Public education is normally the largest item on local community budgets; and in 1940-41 the average yearly expenditure for each pupil in elementary and secondary school was $92.38.

Expenditures for the school year 1939-40 were $2,696,731,306 for public schools and $502,862,137 for private schools, totaling $3,199,593,443.

ADMINISTRATION

Public elementary and secondary schools are under state control, and private elementary and secondary schools are usually accredited (graded according to recognized educational standards) by state governments. Much of the responsibility for financing and administering public schools rests with the local governments, rural or municipal. There is no government control of textbooks, and even within the various states, local school units usually select their own. Similarly, local school units usually determine pedagogical method and curriculum, subject to general state standards.

Ordinarily the administrative system for elementary and secondary schools derives from the state legislature, which establishes a state board of education and a state superintendent of schools. Local school districts are administered by a board of education functioning under powers granted by the state legislature.

HIGHER EDUCATION

Higher education in the United States developed generally along lines parallel to elementary and secondary education. The first colleges emphasized classics and theology, since their primary purpose was to provide a Protestant ministry for the churches. The oldest American colleges are Harvard, founded in 1636; William and Mary, 1693; Yale, 1701; Princeton, 1746; Columbia, 1754; Brown, 1764; Rutgers, 1766; and Dartmouth, 1769. These colleges were for the most part privately endowed, but the principle of state support for higher education grew rapidly, and the ideal of equality of opportunity for all was gradually extended to higher education.

Higher education for women began at Wesleyan College, in Georgia, in the 1830's. Many other colleges for women have since been established. They include Vassar College (1861); Smith (1871); Wellesley (1875); Radcliffe (1879); and Bryn Mawr (1880). Oberlin College pioneered in coeducation which was gradually established in the state universities. Schools for professional training, particularly in law, medicine, and engineering, were founded and improved. Johns Hopkins University, founded at Baltimore in 1876, took the lead in developing graduate study and research as part of university work.

By the Morrill Act of 1862 the federal government granted to each state 30,000 acres of public land for each Senator and Representative as apportioned under the census of 1860. The proceeds of the sales of these lands were to be used by the several states for the endowment and support of colleges for the liberal and practical education of the industrial classes. The institutions established and maintained in accordance with this legislation, 69 in all, are known collectively as land-grant colleges and universities. Under the second Morrill Act (1890) Congress inaugurated a policy of annual federal appropriations to these institutions for teaching certain subjects and these appropriations now amount to $5,030,000. Through the Hatch Act (1887) Congress began to make appropriations to the land-grant colleges and universities for research in agricultural experiment stations, and in 1942 these annual appropriations were $7,000,000. Through the Smith-Lever Act (1914) and supplementary legislation, Congress has made provision for cooperative agricultural extension work carried on by these colleges and universities, and the annual federal appropriations for this service in 1943 were $18,997,000.

Many educational reforms were instituted during this period. The Association of American Universities, founded in 1900, and other associations of scholars stimulated learning and research. Charles W. Eliot, president of Harvard, popularized the elective system, under which students were allowed more freedom in their choice of courses.

In 1940 there were 1,720 institutions of higher education, employing 118,000 teachers. Their yearly income in 1940 was over 575 million dollars; 218 million dollars derived from governmental sources; 202 million dollars from student fees; and 155 million dollars from gifts, grants, and other sources. Colleges are accredited (graded according to recognized educational standards) by the state and by national and regional accrediting associations, organized on a voluntary basis.

In undergraduate colleges of arts and sciences, 750,000 students were enrolled in 1940; 650,000 more in the professional schools; and 90,000 in graduate schools and research divisions—about 1,500,000 persons all told. An additional 300,000 were enrolled in extension courses designed to fit the needs of part-time students, generally business and professional people, not seeking an academic degree.

In 1940, 216,521 degrees were conferred; 186,500 bachelor's degrees, 26,731 master's degrees, and 3,290 doctorates.

Tuition at most state universities is nominal, and students receive food and dormitory lodging at low rates. In 1937-38, college students received $51,255,145 in financial assistance. Of this amount, $41,475,686 was given by the institutions, in the form of scholarships, fellowships, grants-in-aid, loans, and payment for services performed; the remainder was given by the federal National Youth Administration.

COEDUCATION

Coeducation, a natural outgrowth of the democratic principle that women must have educational opportunities equal to those of men, is an intrinsic part of the American educational system. All public elementary schools are coeducational. Of the 25,600 public secondary schools, all are coeducational with the exception of a few institutions of long standing where the nineteenth-century tradition of separate education is still maintained. In 1938 (latest figures available) there were 87 public secondary schools for boys, 76 for girls. Private secondary schools are usually maintained for one sex only, though some are coeducational.

Public and private institutions of higher education included, in 1942, 1,252 coeducational institutions, 217 for men only, and 287 for women.

SCHOOLS FOR HANDICAPPED CHILDREN

There are 50 residential schools for the blind, 79 for the deaf, 104 for the mentally deficient, and 142 for juvenile delinquents. Every state makes some provision for educating its blind and deaf children, and 45 states have a publicly supported residential institution for the mentally deficient. Handicapped children of preschool age, too, attend most of these institutions, since early training is recognized by educators to be especially important in the case of the handicapped.

SPECIAL SCHOOL ACTIVITIES

WAR NURSERIES

Three thousand eight hundred war nurseries and child care centers are financed in part by the federal government through Lanham Act funds allotted by the Federal Works Agency.

These nurseries (for children 2-6) and centers (for children 7-14) are sponsored by local groups, public and private, and are primarily for the benefit of war-working mothers. The program is a continuation of the Child Protection Program established under the now defunct WPA and has been modified to meet existing conditions. Parents pay moderate fees (about $3 a week for one child) if they are able to; local groups—including in many cases the local school system—supply additional funds; and the federal government provides the remainder. Hot lunches and recreational facilities are provided in the nurseries and centers.

TEACHERS' ORGANIZATIONS

Organizations of educators include the National Education Association, the Progressive Education Association, the American Federation of Teachers, and the American Council on Education, all of which study and evaluate educational methods, issue publications, and make recommendations.

NEA has these objectives: To elevate the character and advance the interests of the profession of teaching and to promote the cause of public education. It has 1,100 local chapters, 210,000 members.

The Progressive Education Association (membership 10,000) is now concerned chiefly with coordinating schools and social agencies in the war program, but its primary goal is to evaluate and support progressive educational methods.

The American Federation of Teachers, affiliated with the American Federation of Labor in 1916, has more than 200 locals and is the largest union organization in the teaching field. Its program includes improvement of educational standards and facilities, and working conditions for teachers.

The American Council on Education is a voluntary cooperative association of national and regional education groups and nearly 300 colleges and universities. It coordinates their activities in general and specifically fosters the use of films and recordings in education. The Council also makes up various educational tools such as intelligence tests and standard record cards, and publishes pamphlets and other publications of current interest to educators.

TEACHERS' TRAINING

State-wide standards for teachers in elementary and secondary schools have grown steadily higher, until now the typical teacher has had at least three years of post-high-school training. Between 1900 and 1940 expenditures for teacher-training institutions multiplied tenfold (not considering departments of education in universities and colleges), and normal schools, which had given one or two years' training barely beyond the secondary-school level, raised their standards or, in most cases, became teachers' colleges. There were in 1942, 198 public and 43 private institutions for teachers' training in the United States. In addition to these, almost every university has a department of education.

PARENT-TEACHER ASSOCIATIONS

Twenty-eight thousand local school districts have parent-teacher associations, or P. T. A.'s, composed of parents and teachers who meet to discuss school problems and to promote child welfare in school and at home. These associations are members of the National Congress of Parents and Teachers, which includes 2,685,041 people. They facilitate democratic control of the school system by giving parents a voice in determining school policies.

THE MODERN SCHOOL

In 1900 the accepted teaching method involved a daily textbook assignment, a study period, and then a recitation period. Little effort was made to relate various subjects to one another or to life.

Soon, however, such European developments as the Montessori system, and the work of such progressive American educators as Edward Thorndike, William Kilpatrick, and John Dewey took effect. Seven broad objectives of education, formulated by the Commission on the Reorganization of Secondary Education by the National Education Association in 1918, were widely accepted: health, command of fundamental processes, worthy home membership, training for a vocation, good citizenship, proper use of leisure, ethical character. Now, although school curriculums vary widely among states and local districts, the typical school program represents a considerable advance over 1900.

New subjects have been added, such as physical education (including organized sport), industrial arts, home economics, laboratory classes in science, creative art, music, public speaking, and journalism. Social studies classes offer a practical background in economics, political science, sociology, and other subjects of value to future citizens. Current events are studied in classrooms with the use of contemporary newspapers and magazines.

School activities extending beyond the classroom further the broader aims of the education program. Most modern buildings contain auditoriums where all the students gather for lectures and programs designed to widen their mental horizons. Well-stocked libraries are found in most schools. Activities such as publication of a school newspaper, hobby clubs, debating, dramatic performances, and student-managed recreational programs are conducted. Many schools have a self-government program, under which the students elect delegates to a student council which enforces rules and votes on such questions of policy as can properly be decided by the students.

PROGRESSIVE SCHOOLS

Many schools, notably those connected with universities (such as the Lincoln School at Columbia University) depart even more radically from the old, formal educational methods, and conduct experiments which, if successful, are often adopted by other schools. In such progressive schools there is complete freedom from classroom routine. Achievement records replace the old system of grading, and promotion is determined by achievement rather than by the completion of a prescribed period of time in one grade.

Subjects are related to one another rather than treated as isolated units, and the students "learn by doing." To this end the students embark upon some project—it may range from conducting a model store to publishing a book—which leads them naturally into many spheres of related knowledge.

Students are led to active participation in community life. They visit factories, laboratories, housing projects, stores, and farms. They watch city councils or state legislatures

in action, and frequently set up model councils or legislatures, where they enact the roles of legislators by studying public questions, debating them, and voting on them. Emphasis is placed on contemporary social problems, and students are encouraged to think creatively about their solution.

Current publications and motion pictures supplement the regular textbooks; and students learn to integrate such free-time activities as reading and listening to the radio with their school work.

Progressive educational methods, or a modified version of them, are being adopted by more and more schools.

VOCATIONAL EDUCATION

Vocational education is furthered by the federal government, which is empowered by the Smith-Hughes Act of 1917 and the George-Deen Act of 1936 to aid the states in paying the salaries and necessary travel expenses of teachers, supervisors, and directors of agriculture, trades and industries, home economics, and distributive occupations, and to give financial aid to institutions of higher education engaged in training teachers of these subjects. The states must match federal Smith-Hughes money dollar for dollar. Prior to the fiscal year 1942-43 the states had to match 50 cents for each federal dollar of George-Deen funds; thereafter the states' matching increases 10 percent per annum so that in 1946-47 the matching must reach dollar for dollar. (However, for 1941-42 the states and local communities provided $1.88 for each federal dollar.) In 1941-42, total expenditures for vocational education amounted to $59,022,742, of which $20,257,509 was federal funds and $38,265,033 state and local funds. These amounts include salaries and necessary travel only. In that year federally aided vocational schools enrolled 2,629,737 students: 610,050 in agricultural courses, 850,597 in trade and industrial courses, 954,041 in home economics, and 215,049 in distributive education.* It is estimated that there are about 50,000 trained vocational teachers, of whom about 21,800 are trade and industrial teachers, 17,600 are home economics teachers, 7,800 are teachers of vocational agriculture, and 3,000 are teachers of distributive occupations.

Trade and industrial courses are most frequently conducted in special trade or technical high schools. In 1941-42, 3,702 trade and industrial programs were in operation in 1,278 schools in 1,007 cities. Vocational training in agriculture, home economics, and distributive occupations is usually given in departments of general secondary schools. In 1941-42 there were about 9,000 such departments of vocational agriculture, about the same number of home economics departments, and 450 departments of distributive occupations. Trade and industrial schools offer all-day, trade extension, and general continuation courses. Agricultural and home economics programs include all-day, part-time, and evening courses. In the distributive occupations the courses are limited to cooperative part-time classes and adult extension courses in evening and part-time schools.

Many states offer part-time continuation courses for high-school students who leave school to go to work before graduating. New York State, for example, not only requires full-time school attendance to the age of 16, but also requires that every student under 17 who leaves high school without graduating must attend continuation school four hours weekly. Continuation courses are closely coordinated with the outside employment of the student, fitting him for greater efficiency and faster progress in his job.

In addition to the federally reimbursed vocational training programs, there are numerous public and private schools offering training in home economics, commercial education, the trades, and occasionally agriculture.

ADULT EDUCATION

An estimated 30 million adults are currently taking advantage of opportunities for education and self-improvement provided by government agencies, private welfare agencies, and commercial mediums. Extension classes for adults, held in the evening, are offered by a great many colleges and universities; public high schools offer vocational-training classes at night; community organizations sponsor lectures and classes; federal prisons offer vocational and orientation programs to inmates; many religious groups and settlement schools have educational programs. (Also see *Labor.*)

The American Association of Adult Education and the Institute for Adult Education (maintained at Teachers' College, Columbia University, with Carnegie Corporation funds) train leaders in adult education, coordinate the work of various agencies, and do research work.

The following approximate annual figures indicate the interest in adult education:

Seven million persons avail themselves of state and federal agricultural extension work.

Study courses offered by 350 private correspondence schools enroll 750,000 adults. Correspondence courses are also offered by 42 state universities and colleges.

At least a million persons follow reading courses, often augmented by lecture courses, sponsored by libraries.

Three million women belong to women's clubs, most of which stress study programs in their activities.

More than five million workers have enrolled in wartime vocational training courses since July 1940, in addition to an average of 800,000 students enrolled annually in regular vocational courses.

One million farm workers have enrolled in rural vocational training courses since December 1940.

Open forums sponsored by various public and private organizations, which offer platform lectures followed by discussions from the floor, number some 30,000 and draw at least 10 to 15 million persons annually.

SPECIAL INSTITUTES FOR EDUCATION

In addition to public and private educational institutions, there are a number of institutes and foundations endowed for specific purposes. The Rockefeller Foundation (founded 1913, original endowment $182,814,480) helps support other agencies and offers post-doctoral fellowships in various fields, especially public health, psychiatry, experimental biology, the social sciences, and the promotion of cultural exchanges between nations. Thus far this Foundation has expended more than 300 million dollars. The General Education Board, founded by John D. Rockefeller in 1902 (original endowment 129 million dollars), with the object of "promoting education within the United States without distinction of race, sex, or creed," has assisted state governments and higher educational institutions to undertake studies and experiments in public education with special emphasis on Southern and Negro education. Its appropriations from 1902 to 1942 totaled $275,235,975.

The Carnegie Corporation (founded 1911, endowment 125 million dollars) supports public libraries, educational and scientific research, adult education, and the publications of

* Distributive education is concerned with methods of salesmanship and retailing. Since the war, it includes rationing procedure.

professional and scholarly societies. The corporation has expended almost 200 million dollars as of 1942.

The Julius Rosenwald Fund (established 1917, endowment 20 million dollars) supports experimental work in rural schools and activities directed toward improving the cultural opportunities of American Negroes. Rosenwald's provisions allow for the expenditure of capital as well as income and require the entire endowment to be expended by 1957.

The Russell Sage Foundation (founded 1907, endowment 15 million dollars) supports activities and studies designed to improve U. S. social and living conditions.

The John Simon Guggenheim Memorial Foundation (founded 1925, endowment 3 million dollars) grants fellowships for research and creative work in the fine arts. Each fellowship ordinarily amounts to $2,500 a year. About 75 fellowships are customarily granted each year.

Rhodes scholarships were created in 1902, under terms of Cecil Rhodes' will. About 200 scholarships are awarded annually, 32 of them to Americans (most of the rest to students from British Dominions), for a three-year course of study at Oxford University in England. They are designed to foster an interest in England on the part of American and colonial students. The stipends are about 400 pounds per year. The scholarships were suspended in September 1939 for the duration.

EDUCATION IN WARTIME

Education ties into the war program by offering vocational training for war work and preparatory training for military service; enrolling youth of all ages in wartime activities during school life; educating for citizenship in the post-war world; and protecting child health and welfare under war conditions. (See page 15.)

Federal-state vocational training has been expanded to train war production workers in the public vocational schools in approximately 2,800 training centers for war industry through short, intensive courses. Patterned in principle after the Smith-Hughes Act providing for trade training, the Vocational Training for War Production Workers program of the U. S. Office of Education from July 1, 1940 to June 30, 1943 trained 5,344,287 men and women civilian workers for the principal war industries or for the armed services, 65,000 workers in radio occupations being trained alone for the U. S. Army Signal Corps. In addition to providing "break-in" training for beginning workers, the public vocational schools provide "upgrading" for employed mechanical workers. The largest number of war workers have been trained for aviation, shipbuilding, the machine tool industry, ordnance, munitions industry, motor transportation, communications, and the electronics industry. The regular or Smith-Hughes Trade and Industrial programs offer trade training and technical training through all-day and part-time classes and evening trade extension classes.

Typical high-school curriculums now include courses in aeronautics, fundamentals of machines and of electricity, shop work, automotive mechanics, meteorology, topography and map reading, mechanical drawing, blueprint reading, radio, hygiene, home nursing, nutrition, and radio code practice. Many high schools require one or more such courses for graduation.

Pre-flight training is given in many of the nation's schools. Even elementary-school children are learning simple principles of aerodynamics and building model planes. Material on aviation is incorporated in regular courses in science, mathematics, and reading; or an extra course in aviation is added to the regular curriculum.

In high schools, this "air conditioning" program has two objectives: to prepare students for life in a civilization which will be distinctly air-minded, and to give preliminary training to future airmen. Half a million high-school boys are now taking training worked out in collaboration with the Army and Navy, which will enable them to speed through ground training later on.

Colleges are offering short, intensive courses in engineering, chemistry, physics, and production supervision which are sponsored by the Engineering, Science, and Management War Training Program of the U. S. Office of Education, and most of them have speeded up their programs to enable students to graduate in three years or less, particularly in such fields as chemistry, physics, engineering, and other subjects related to war production. From October 1940 to October 1943 ESMWT courses have enrolled over one million men and women at more than 200 participating colleges and universities.

In December 1942, the Army and Navy announced a new plan offering college training to potential specialists and officers at government expense. The Army program (Army Specialized Training Program) is designed to provide a continuous flow of technicians and specialists needed by the Army. The Navy College Training Program is similar to that of the Army except that in addition to supplying technicians, its purpose is to provide general duty officers for the Navy, Marines, and Coast Guard. Both programs utilize the facilities of colleges and universities approved by a joint War-Navy-Manpower committee. Expenses are paid by the services who also specify the courses and curriculums to be followed; however, control of all services and facilities provided remains in the hands of the colleges.

On July 22, 1943, more than 60,000 soldiers were taking part in the Army program, which went into operation at the end of March. By August 25, the number participating had reached 100,000, with 16,000 awaiting classification. Army requirements specify that candidates must be under 22 (except where men over 22 meet certain requirements for advanced training), have had at least a high-school education, and have made a score of not less than 115 on the General Classification Test. Courses are based on a twelve-week term and the men get from one to eight terms depending on their fields.

The Navy program began operations in July with nearly 80,000 men, drawn from enlisted personnel, civilians, and reservists already in college on inactive status. Candidates must be between 17 and 20 and must have passed certain preliminary examinations. The Navy term is of 16 weeks' duration and students being trained for general duty receive four terms or one and a third years of study. Specialized personnel (chaplain, medical, engineering, and other candidates) receive six to twelve terms.

Men enlisted in both programs wear uniforms and are subject to military discipline although under certain conditions they can join fraternities and enter into collegiate athletic activities.

Special emphasis is placed on physical fitness in educational institutions at all levels, and most secondary schools offer optional military training.

The High School Victory Corps, a voluntary program established in the autumn of 1942, is enlisting most of the nation's high-school students. Members join one of five divisions, depending upon whether they are preparing for Army, Navy, Air Forces, war industry, or a profession, and are guided accordingly in their studies. They must enroll

in at least one home-front job, such as air-raid warden, scrap collector, farm helper, or Red Cross worker, and must take a physical-training course.

The Army has also distributed to all U. S. high schools seven "pre-induction" course outlines in electricity, radio, shop work, machines, automotive mechanics, driver education, and clerical procedure. The courses are designed to prepare students for further training in specialized fields within the Army. The 90-hour course in electricity, for example, would help to prepare a youth for no less than 151 Army jobs such as telegrapher, field lineman, bombsight mechanic, or searchlight operator.

Elementary schools are doubling their efforts to safeguard health, ensure adequate nutrition, and cooperate with parents in maintaining a normal home life for pupils.

Training for citizenship in the postwar world also receives strong emphasis in both elementary and secondary schools. Students prepare to face expected national and international postwar problems through classroom study, discussion groups, independent reading, and attendance at lectures and forums. They are given a knowledge and an appreciation of other national cultures, and made to feel the world unity among democratic peoples. Thus the American schools which have always been a great melting pot fusing together children of widely dissimilar racial and religious backgrounds, are building world citizens for the future.

* * *

PRESS, MOTION PICTURES, AND RADIO

One of the bulwarks of American democracy is an enlightened public with free access to information and the unshackled expression of opinion. Among the forces that serve this end with speed, power, and mechanical ingenuity are the press, motion pictures, and radio, reaching an audience of millions and linking the U. S. with the rest of the world.

THE PRESS

The oldest and ever potent channel of communication—the free press of America—is made up of nearly 20,000 daily newspapers, weeklies, and other periodicals. These are guaranteed by the First Amendment to the Constitution and by state constitutions complete freedom to print whatever material or espouse whatever cause they please, provided they observe the libel and obscenity laws.

The sense of responsibility felt by the press is perhaps most evident in war. Voluntary self-censorship is exercised, based on recommendations laid down by the Office of Censorship for handling war news. Violations of the letter or spirit of these suggestions are extremely rare, for editors and writers are well aware that the national security is involved.

In presenting and interpreting the news of the world, in keeping a searchlight on the actions of public officials, and in campaigning for reforms and policy changes that seem desirable, the free press of America has helped to keep democracy a living ideal.

President Roosevelt holds press conferences, a custom inaugurated by Theodore Roosevelt, twice weekly at the White House. Sometimes as many as 300 reporters and special writers attend, but usually the number is less. They file into the President's office, surround his desk, question him freely on matters great and small. Representatives of newspapers opposed to the President's policies are present on the same terms as those working for friendly papers.

DAILY NEWSPAPERS

The first daily newspaper in the United States was the Pennsylvania Packet and American Daily Advertiser, published in Philadelphia in 1784. The first in New York was the Daily Advertiser, launched in 1785. The New York Evening Post, the oldest existing daily in the country, was founded by Alexander Hamilton and John Jay in 1801 as a Federalist organ.

During the nineteenth century the small-circulation party press that had grown up in colonial times changed gradually into the popular commercial institution of today. Benjamin Day, Sr., James Gordon Bennett, Sr., Horace Greeley, Samuel Bowles, Charles A. Dana, Victor Lawson, William Rockhill Nelson, and Joseph Pulitzer were among the personalities who dominated this period of journalistic expansion and change. In New York City, the Tribune, founded in 1841, established a fine tradition under the guidance of Greeley. The World, edited by Pulitzer, became one of the great crusading papers after Pulitzer bought it in 1883. Bennett was the first journalist to recognize the interest of society news, now a department of newspapers large and small, and his son helped link Europe and America through the cosmopolitan columns of the Herald. The Sun, edited by Dana, was notable for its brilliant staff and gifted reporting.

The 1890's were marked by newspaper stunts, crusades, and "sob" journalism; but the shift in emphasis from local to international news has taken the edge off the crusading tradition, and first consideration now is given to the news of the day—rushing in with compelling force from all parts of the world. However, there are still papers that take up a local cause and force reform through old-fashioned crusading methods.

There were, in 1943, 2,026 daily newspapers, of which 1,894 were printed in English. Americans purchase 44 million copies daily—17½ million every morning and 26½ million every evening, over one copy for every three persons in the nation. Every Sunday 36,209,232 papers packed with news, pictures (often in color), entertainment features, and colored comic sections are sold. The average American pays three cents a day for his morning or evening paper, or nearly $10 a year, and close to $15 a year when the 10-cent Sunday issue is added.

Practically every American family reads a newspaper of some type—daily or weekly. National and international affairs are thoroughly discussed, enabling the population as a whole to make up its mind on major political matters, despite sectional differences in thought and custom. The mechanical facilities at the disposal of the modern press and the extraordinary speed with which news can be assembled, correlated, and distributed have a profound effect on the social scene, in war as in peace.

Metropolitan newspapers have large circulations, but their influence is regional. There is no paper comparable to the New York Tribune of Horace Greeley's day, when journalism was in its infancy, nor is there one with the

country-wide influence of the London Times. The nearest approach is the New York Times, sometimes referred to as the "world's most complete newspaper." It sells nearly half a million copies daily and 800,000 each Sunday. More than a score of other newspapers, each of which is bought by nearly half a million persons daily, are published in the larger American cities.

The tabloid-size newspaper, featuring news pictures, is a robust offspring of the American press. In fact, the largest circulation of any U. S. newspaper is that of the New York Daily News, purchased by 2 million persons daily and by more than 3¾ million on Sundays. Launched in 1919, it was the first modern American tabloid. The vogue has spread, and in many American cities the tabloid is now an established institution. The Chicago Times flourishes in Chicago. PM is an innovation of recent years in New York City—a tabloid that refuses advertising and is active as a crusading force.

American newspapers are to a considerable extent standardized, carrying the same national and international news, the same columns, cartoons, and other features, and all this has contributed as much to the homogeneity of the American people as the motor car. The advertising columns exhibit this same quality, permitting manufacturers to advertise their products in every part of the country. Thus, the residents of a distant small town wear the same kind of clothes, eat the same kind of food, and own the same makes of car as the people of New York City.

There is as well a large specialized press in the United States. Publications of many kinds include trade and financial journals, literary and professional papers, the foreign-language press, and dailies for Negro readers. Organized labor has its own press—daily, weekly, and monthly.

NEWSPAPER CHAINS

There are 56 "chain" newspaper groups in the United States, most of them owning from three to five papers. But papers of this type do not total more than 300 of the nation's 2,026 dailies.

After the turn of the century William Randolph Hearst began building a publishing empire which at its peak included 24 daily newspapers; wire-news and picture services; King Features Syndicate, the largest in its field; and numerous magazines. Although Hearst in recent years has sold or merged some of his holdings, he still controls 17 dailies, the wire and picture services, the syndicate, and a number of magazines.

Older than the Hearst group is the Scripps-Howard chain, founded by the late Edward Wylie Scripps. It now publishes 19 dailies from coast to coast, including the New York World-Telegram (circulation almost 400,000), the Cleveland Press, Pittsburgh Press, and Washington News. President of the group is Roy W. Howard, who started as a reporter. Another large group is the Gannett chain which publishes 19 papers. Frank E. Gannett is the head of the chain.

PRESS ASSOCIATIONS

Serving the minute-by-minute demand of U. S. newspapers for the latest news and pictures are three great wire services with thousands of employees at home and around the globe: the Associated Press, the United Press, and International News Service. A fourth, Transradio News Service, is a comparative newcomer, and serves only a limited number of papers.

The Associated Press, founded in 1848, is a cooperative organization with approximately 1,400 member newspapers, 94 bureaus in the United States, and a world-wide news-gathering service. Its news is distributed nationally over 300,000 miles of leased wires and is received on more than 3,000 automatic machines. Its daily file to the metropolitan papers often runs to more than 200,000 words. Newspapers have been bought for the privilege of obtaining an Associated Press membership.

Associated Press has three subsidiaries, one of which supplies news to over half the radio stations in the United States, one supplies news to three-quarters of the papers in Great Britain, and the third gathers and, to some extent, distributes news in Latin America.

The United Press, a commercial agency founded in 1907, serves 871 newspapers and 498 radio stations in the United States, has 171,000 miles of leased wires, distributes news 24 hours daily at a speed of 60 words a minute. The UP and the British United Press services abroad go to 492 newspapers in 44 countries and territories and to 105 radio stations in 20 countries and territories. Its total daily file averages 750,000 words. UP news is printed in an estimated 27 languages and is broadcast in 47 languages.

The International News Service, also privately owned, was launched by William Randolph Hearst in 1909. It maintains 57 bureaus and branch offices in the United States, has 170,000 miles of leased wires, and supplies news to 700 papers. Its daily file to the metropolitan papers averages 150,000 words.

The press services are geared to high-speed factual reporting, to condensed and objective treatment of news events. They function night and day, with the spur of ever-recurrent deadlines, feeding the numerous editions that roll off the presses, sometimes as many as seven and eight in a day.

Through these services a steady flood of foreign, national, and state news pours into newspaper offices, to be cut, edited, and swiftly set in type. Small papers depend on them for all but local news. Metropolitan dailies use press-service dispatches to supplement the output of their own news-gathering organizations. The major services transmit pictures by wire. They maintain large staffs in Washington and the state capitals to observe and report political developments. They were first to link the far corners of the earth with America, before the larger dailies established their own foreign bureaus. Now such papers as the New York Times, the New York Herald Tribune, the Chicago Daily News, the Christian Science Monitor, and the Baltimore Sun have built up notable foreign bureaus of their own.

Alert and enterprising foreign correspondents have long been a mainstay of U. S. journalism. The universal nature of this war has augmented their numbers, enlarged the scope of their work. Richard Harding Davis created a romantic tradition years ago that is carried on more soberly and objectively today by hundreds of war correspondents, many of them on battlefronts, faithfully reporting military and political developments all over the world. Today they move across the face of the earth, sharing the risks of the fighting men, in some instances losing their lives in the performance of their duty. Some have moved from the typical anonymity of the press to fame, through the high quality of their dispatches, or through personal exploits. They accompany invasion armies, fly in bombers over Germany, are torpedoed at sea, are imprisoned in enemy countries, are wounded in the desert, are an essential part of the military picture on every front.

SYNDICATES

Feature syndicates, a distinctly American institution, also serve the newspapers with scores of special features—from editorial comment to cartoon strips—which have had considerable effect on the reading public. The ten leading syndicates are operated by the press associations and by certain large newspapers, but anyone possessing a feature to dis-

tribute may syndicate it, and there are some 350 newspaper syndicates in the United States.

Syndication makes the expensive services and talents of famous writers and artists available to newspapers which could not individually afford to purchase them. The cost of the feature is divided into a multitude of small fees, graduated according to the subscribing newspaper's circulation. Pictorial material is photoengraved only once, by the syndicate; inexpensive matrices mailed to the subscribing newspaper may be reproduced at a fraction of the original cost. Through a system of advance mailings and "release dates," all subscribers publish the feature on the same day. Thus a local paper in a small town like Yreka, California, will print an important article or a widely appreciated cartoon simultaneously with a metropolitan journal in New York.

The syndicate has played an important role in spreading new ideas, cultural accomplishments, and entertainment from their point of origin—whether small town or big city—to every part of the land. Newspaper readers in the most remote hamlet receive exactly the same feature service as their big city cousins, including serialized books which they could otherwise ill afford to possess.

This distinctive American industry was launched in 1884, by Samuel S. McClure, with the writings of Mark Twain, Rudyard Kipling, and Conan Doyle, among others. The Hearst syndicate entered the field in 1895, and soon the public came to know Dorothy Dix, Beatrice Fairfax, Ambrose Bierce, Finley Peter Dunne's "Mr. Dooley," and the early comic-strip characters—the Katzenjammer Kids, Happy Hooligan, Mutt and Jeff, and sundry others.

The most recent trend in this field is toward commentary. The syndicates now command some of the best journalistic talent in the country, and are broad enough in scope to include such diversified personalities as Walter Lippmann, Raymond Clapper, Ernest K. Lindley, Mark Sullivan, David Lawrence, Samuel Grafton, and Dorothy Thompson on politics and international affairs; Westbrook Pegler, Eleanor Roosevelt, and, until his recent death, Heywood Broun on general topics.

The column of serious and informative comment has become an essential and important phase of the American press, representing the public thirst for knowledge and guidance in the face of cataclysmic events. This type of feature has largely supplanted the humorous and entertaining columns of two decades ago.

Another manifestation of the times is the gossip column, which was launched by Walter Winchell in New York and has grown up with the tabloid papers. It applies the small-town technique of personal chit-chat to national celebrities, and has become one of the most widely syndicated and thoroughly read of newspaper features. In 1932 the same idea was successfully applied to national politics in a column by Drew Pearson and Robert S. Allen in Washington; the column is still popular.

The Washington, Hollywood, and Broadway gossip columns are distributed by telegraph and handled much like straight news. Fresh and topical, they require quick distribution.

Specialists also do columns on health, fashion, beauty, dietetics, science, cooking, sports, motion pictures, gardens, interior decoration, stamps, bridge, care of dogs, advice to the lovelorn, and sundry other subjects catering to a wide range of human needs. The woman's page absorbs quantities of syndicate material, including serialized fiction. Many of the 12,000 women employed as writers on American newspapers are in this field.

Successful syndicated features attain a huge circulation, as high as 20,000,000 newspaper readers daily, all simultaneously "following" the ideas of a columnist or the adventures of a cartoon character. Their creators receive the highest salaries in journalism. Such men as Robert L. Ripley, Harold T. Webster, Ham Fisher, Walt Disney, Al Capp, Harold Gray, Milton Caniff, P. L. Crosby, J. R. Williams, and others have made fortunes as well as reputations with their cartoons.

SPECIAL DEPARTMENTS

The metropolitan newspapers give as much as 90 columns daily to business and financial news and from 25 to 45 columns to sports. Baseball, football, and prize fights are always favored newspaper topics involving special editions, large staffs, and extensive reporting. In recent years the trend has been to foster amateur rather than professional sport, and college athletics, both for men and women, have been featured in the national press. Some of the best reporting done in America appears in the sports sections of the papers, and notable columnists have emerged from this branch of journalism. Heywood Broun, Westbrook Pegler, John Kieran, Paul Gallico, and Damon Runyon were all sports writers before turning to general comment.

Next to news, sports, and finance, the entertainment world absorbs most newspaper space. Large sections in the Sunday papers and many columns in the dailies are devoted to news and criticism of the arts—music, books, art, the theater, the films, radio, and other cultural and entertainment activities. The daily book column has become an accepted feature of the large daily, and the public is kept in close touch with the literary output of the world.

With the Metropolitan Opera a focus for the great musical artists of the world, and with a steadily growing concentration of artistic talent in America, a succession of critics like James Gibbons Huneker (1860-1921), Henry E. Krehbiel (1854-1923), Lawrence Gilman (1878-1939), Philip Hale (1854-1934), Virgil Thomson, and Olin Downes, have played important roles in promoting good taste and artistic understanding among the general public. In the field of newspaper art criticism there are Royal Cortissoz and Edward Alden Jewell; in the field of books, Stuart P. Sherman (1881-1926), John Chamberlain, Harry Hansen, and Lewis Gannett. A free press has given these men editorial latitude to exercise their critical judgment without fear.

ADVERTISING

A staff of more than 2,000 is needed to turn out a large metropolitan daily in America, and a capital investment of at least 5 million dollars is required. The advertising revenue to meet this necessary expenditure has soared with the years. National advertisers as a whole spend nearly 175 million dollars each year in daily papers. The 425 million dollars spent by local advertisers, and the revenue received from subscribers and street sales, bring the annual total revenue of daily newspapers in the United States to around 750 million dollars. A single national advertiser, General Motors, in 1941 spent $12,275,000 for space in daily newspapers to promote its many products.

WEEKLY PRESS

The weekly and rural press is an important phase of journalism in a country as vast as the United States. Although declining in number, there are still 10,196 weekly papers devoting themselves chiefly to local affairs and coming into closer contact with their readers than does the city daily. William Allen White, of Emporia, Kansas, is an outstanding example of the small-town editor, who became nationally known for the sturdy native quality of the journalism he fostered in his Gazette. The grass-roots editors, as these country editors are sometimes called, are a potent force in molding public opinion. Some of them produce excellently edited papers that reach close to the lives of the rural dweller. They have made a distinctive contribution to the newspaper world.

MAGAZINES

Magazines form the third great section of the American free press, and in this field the United States is richly served. At the beginning of 1943 there were 6,354 magazines published in the U. S. Twenty general magazines with a circulation of more than a million each have a total circulation of 45 million. One hundred and fifty pulp-paper magazines, mostly fiction, have a circulation of 10 million.

Well printed and interlarded with four-color art work in both text and advertising, the great monthlies and weeklies are both informative and entertaining. There is scarcely an American home which does not subscribe to or buy a magazine, while middle-class and upper-income families regularly buy three to five a month.

A pocket-sized giant, Reader's Digest, holds circulation supremacy in the magazine field, selling a total of 10 million copies each month in this country, Latin America, Sweden, and the Near East. It is unique among American magazines in that it accepts no advertising, makes money on its circulation alone. As its name implies, its contents are devoted to condensed versions of articles from other U. S. magazines, plus a considerable number of self-sponsored features. It sells for 25 cents in the United States.

A woman's magazine—Ladies' Home Journal—is next in circulation rank among the monthlies, selling 4,252,457 copies each month at 15 cents a copy. Other U. S. monthly magazines and their circulations are: Woman's Home Companion, 3,718,692; Good Housekeeping, 2,782,000; American, 2,555,000. Among the weeklies are Life, 4 million; Saturday Evening Post, 3,250,000; and Collier's, 2,762,000. Look (a bi-weekly) sells 2,097,000. Chief feature of magazine journalism in the past decade has been the rise of picture magazines—exemplified by Life and Look.

Two widely read news weeklies supplement the newspapers in keeping the American public informed. Time sells over 1 million copies each week, while Newsweek, with a later start, sells 549,000. They present a crisp, condensed version of world events, plus background information.

Another unusual success, by the publishers of Time and Life, is Fortune, a monthly devoted to descriptions and analyses of segments of American business and industry and—more recently—to broad aspects of American government and international relations. Priced at $10 a year, Fortune is the most expensively printed and illustrated magazine in general circulation.

The New Yorker magazine, founded in 1925, leads the humorous field. Although its circulation is only 197,744, it has a well-established reputation for its cartoons, satiric comment, and the quality of its short stories.

The spectacular growth of mass-circulation magazines has tended to overshadow the so-called quality magazines, but these are still a leading medium of expression for informed thinking. At present the principal quality magazines are the Atlantic Monthly and Harper's (monthlies), and the Nation and the New Republic (weeklies). Most of their pages are devoted to non-fiction, political and social commentary, and national affairs.

The Yale Review and the Virginia Quarterly Review uphold the tradition of the quarterlies, established by the old North American Review.

Trade, technical, and business publications are numbered in the thousands. They serve to keep businessmen and industrial technicians posted on business trends and changing industrial techniques in specialized fields. (For the religious press, see *Religion.*)

MOTION PICTURES

PRODUCTION

Originally chosen as a center for film production because of its year-round sunlight and the variety of scenery near-by, Hollywood, California, has long been the heart of the U. S. motion-picture industry. Here 70 percent of the world's films are made. In peacetime, Hollywood produced annually more than 500 full-length feature pictures and more than 700 short films. In 1942, Hollywood produced 533 feature-length films and 683 short films.

Major motion-picture companies include Columbia, Metro-Goldwyn-Mayer, Paramount, RKO-Radio, Universal, Warner Brothers, Twentieth Century-Fox, and United Artists, which, though primarily a distribution agency, also makes pictures. There are also a number of smaller companies. Some 200,000 people are employed in the motion-picture industry: 30,000 in production, 14,000 in distribution, and the remainder in theaters throughout the country.

Each company has its own production facilities and distribution system, and may have as many as a dozen feature pictures in production simultaneously. Company lots, often several miles square, include laboratories, business offices, and walled-in stages and outdoor sets where scenery is erected and much of the actual shooting (the photography) takes place. Scenes filmed against outdoor backgrounds which cannot easily be constructed on the set are taken "on location," personnel and equipment being moved to a region—on another continent if need be—which offers the appropriate type of scenery.

Before a picture is completed, it may require the efforts of several thousand people. Low-cost, or "B" pictures, may be made in a few weeks. A few major productions have required as long as two years from the time the story idea was decided upon, though actual shooting seldom takes more than eight weeks.

The motion-picture industry censors its own films, through the Motion Picture Producers and Distributors of America, of which Will Hays is president. In addition, a few states have censorship boards. Recognition of achievement in various motion-picture activities is made through annual awards by the Academy of Motion Picture Arts and Sciences, an industry-wide organization financed by the producers.

TYPES OF FILM MADE

Motion pictures have developed with phenomenal rapidity since the first decade of the century, when crude, brief films, generally "slapstick" comedies, were shown in music halls and penny arcades. Great technical progress has been made and more is yet to come. New developments, such as a recently created device to widen the screen for more effective presentation of spectacular musical-comedy sets, are expected to come into more general use after the war.

Hollywood has increasingly paralleled its technical developments with a realization of the broad possibilities of the screen and of the public's interest in viewing films of high quality. The screen has attracted outstanding talent in the acting profession. Top-flight writers prepare scenarios and write dialogue, and top-ranking composers and musicians supply musical scores. New insight has been brought to the art of directing by such men as John Ford, whose outstanding films include The Long Voyage Home (made from Eugene O'Neill's sea plays), Grapes of Wrath, and Battle of Midway; Frank Capra, master of the light comedy with overtones of social significance; Preston Sturges, writer-

director who has produced a brilliant series of farce comedies; and Orson Welles, actor-director whose Citizen Kane introduced several important technical innovations.

Hollywood produces films for every taste. Searching for desirable screen material, the motion-picture industry has brought to the screen many classics of fiction, such as Pride and Prejudice and A Tale of Two Cities, and such outstanding contemporary works as Pearl Buck's The Good Earth, Stephen Vincent Benét's short story The Devil and Daniel Webster (filmed as All That Money Can Buy), Franz Werfel's Song of Bernadette, and Ernest Hemingway's For Whom the Bell Tolls. Other productions scheduled are Madame Curie by Eve Curie; One World by Wendell Willkie; and Jane Eyre by Charlotte Bronte. Stage plays which have appeared recently on the American screen include My Sister Eileen, Watch on the Rhine, The Little Foxes, Claudia, and Lady in the Dark.

A trend toward realistic, homely depiction of American life is shown in Pride of the Yankees, based on the life of the baseball player Lou Gehrig, and the Henry Aldrich pictures. Social problems have been handled with sincerity, though with no sacrifice of entertainment value in such films as The Ox-Bow Incident, and Keeper of the Flame; and presented with complete frankness in Grapes of Wrath, from John Steinbeck's novel about migrant workers. Comedies such as The More the Merrier, depicting life in the crowded capital of Washington, and Heaven Can Wait, a domestic farce, have proved popular. Charlie Chaplin's art is so dateless and universal that as early a Chaplin picture as The Gold Rush (1925), brought up to date with a dialogue commentary, enjoyed a successful revival in 1942. High technical excellence marks light musicals intended for pure entertainment, such as the series starring Fred Astaire.

Walt Disney's pioneering in artistic animation has gained him an international reputation. Starting with short cartoons such as Three Little Pigs and the Mickey Mouse series, he has moved on to full-length cartoon features like Snow White and the Seven Dwarfs. A recent Disney undertaking in a very different field is Victory Through Air Power, based on Alexander P. de Seversky's book of the same name. Disney has voluntarily devoted 90 percent of his output to government films made on a cost basis.

Documentary pictures, offering a straight reportorial presentation of some important subject, receive increasing attention. They are filmed by commercial companies, independent producers, and government agencies. Among outstanding documentaries are two films made by Pare Lorentz for the federal government: The River, and The Plough that Broke the Plains.

Motion pictures provide a new educational medium, and several small companies specialize in educational pictures for schools and colleges. The U. S. Department of Agriculture makes use of films to instruct farmers about new agricultural techniques. Difficult surgical operations are recorded on film for the instruction of doctors and medical students; chemists can watch chemical reactions photographed through a microscope and reduced to slow motion; botanists are able to study the growth and development of plants.

DISTRIBUTION AND ATTENDANCE

There are over 20,000 motion-picture theaters throughout the country, of which 17,728 were operating in January 1943, with a seating capacity sufficient to accommodate one-twelfth of the population at one time. All cities have comfortable, air-conditioned theaters seating up to several thousand people; Radio City Music Hall, in New York City, seats 6,200. In most cities there is a theater within easy walking distance of nearly every home, and in rural districts there is nearly always a theater within driving distance. Some 90 million visits to motion-picture theaters were made weekly in 1942 at an average admission price of 25 cents.

Theaters are owned by independent businessmen, by exhibitors who operate chains which frequently book the same pictures simultaneously, and by the large motion-picture companies. Film exchanges located in the principal cities distribute the films, which are rented either for a flat sum or for a percentage of box-office receipts.

The "double feature," or practice of showing two full-length feature films, has been so widely adopted in recent years that the average program now includes one major picture, one low-cost "B" picture, and several short films, such as newsreels, cartoons, sports subjects, musicals, or advertising trailers. There has been considerable opposition to the double feature, however, and wartime curtailment of production, with its corollary emphasis on quality rather than quantity, may lead to resumption of the practice of showing one feature film and several shorts.

THE MOTION PICTURE IN WARTIME

The motion-picture industry is performing wartime service by producing films which document or dramatize military activity and other war-related subjects. Such films constitute about half the current and scheduled production; the other half consists of entertainment pictures (principally musicals or comedies) regarded by the government as important for their recreational value.

The armed forces have supplied material for films such as Air Force, which depicts the bravery and teamwork of a Flying Fortress crew; Action in the North Atlantic, dealing with the exploits of the merchant marine; So Proudly We Hail, paying tribute to the gallant U. S. Army nurses on Bataan; Guadalcanal Diary, which presents a day-by-day factual account of the Solomons battle.

Other films which combine military themes with morale-building entertainment are Stage Door Canteen, which pictures the famous New York center for servicemen and enlists the talents of many topflight stage performers to appear in minor roles as canteen workers, and Irving Berlin's wartime service show, This Is the Army.

Tribute has been paid to the British in Mrs. Miniver and This Above All; to the Russians in The Boy from Stalingrad and Mission to Moscow; to the Czechoslovakians in Hostages; to the French in the March of Time short The Fighting French; to the Greeks in the documentary film Shrine of Victory; to the Norwegians in The Moon Is Down and First Comes Courage; and to the Chinese in several films including Battle Cry of China.

Films exposing the character of the enemy began to appear well before America entered the war. Later films on the same subject are Hitler's Children, which reveals Nazi brutality, and Behind the Rising Sun, which deals with Japanese cruelty and fanaticism. Hundreds of other films combining dramatic value with serious war purpose have been released or are in production.

Training films for servicemen and war workers have been made by the industry since late in 1940, when movie executives offered their services to Washington through the Academy of Motion Picture Arts and Sciences. Working with the recently abolished Motion Picture Bureau (Domestic) of the Office of War Information, the motion-picture industry also produced films which dramatized messages from the government to the American people.

The OWI Motion Picture Bureau, of the Overseas Opera-

tions Branch, produces and distributes films for exhibition overseas, synchronizing them in various languages. Weekly newsreels, covering news events all over the world, are compiled by OWI from material supplied by United Newsreel Corporation, an organization formed by the nation's five major newsreel companies to coordinate their war activities. OWI also produces and distributes abroad documentary films on American life and American war activities and films of information in such fields as agriculture, medicine, and education.

These films are prepared in various languages for the widest possible distribution. Versions ready in the fall of 1943 included:

Afrikaans	German	Portuguese
Arabic	Icelandic	Spanish
Chinese	Italian	Swedish
English	Moghrabic	Turkish
French	Other languages are in preparation.	

The films are distributed through regular release organizations, in addition to the special non-theatrical channels that have been organized for this purpose. Special mobile units exhibit the films to large audiences in remote areas where no theaters exist, and in populated places where the local motion-picture equipment has been destroyed by enemy action.

An arrangement was made with the American motion picture industry whereby the industry is turning over to OWI 40 programs for immediate distribution in liberated areas. The pictures have been selected from the entire available list of each company. They are being prepared with superimposed titles in various European languages and two or more prints will be provided in each language. The industry will be responsible for all the expenses involved in this operation, which will amount to approximately one-half million dollars.

OWI teams will enter the liberated areas as soon as permission is granted by the military authorities and will put these pictures into distribution as soon as possible thereafter.

The need for conserving celluloid and other strategic materials has led to curtailment of total picture production and to a ban on costly sets. Effective substitutes have been developed for more than 50 strategic materials once widely used.

Censorship of films, as in peacetime, is largely in the hands of the industry itself, except for films dealing with technical and military matters and films released outside the United States. The OWI examines scenarios for projected films and acts in an advisory capacity, and the government neither requires production of certain films nor forbids production of others. The motion-picture industry's all-out participation in the war effort is purely voluntary, and includes many activities other than film production.

Two days after America declared war on Japan, Hollywood formed a volunteer Victory Committee composed of Hollywood's key figures, including 33 corporation presidents and many top-notch film stars, to supervise and coordinate the industry's war program. Victory Committee activities include selling war bonds and stamps in motion-picture theaters throughout the country; producing and distributing government films; providing many prints of the latest pictures on 16-millimeter film to be shown without charge to American expeditionary forces overseas; and helping disseminate government information through special newsreel releases.

More than 1,000 of the nation's foremost film stars are contributing their time to entertaining men in Army camps and at Navy bases, making radio talks in connection with the war program, or traveling on bond-selling tours. The wide affection which the nation's foremost stars command makes them particularly well qualified to perform these services. Seventy-two film stars have traveled the USO Camp Shows circuit. Al Jolson has flown to Alaska and to Libya to entertain American servicemen, and Bob Hope and his troupe have performed in Alaska, the Aleutians, Africa, and Sicily. Among others, Kay Francis and Carole Landis have entertained in England, Joan Blondell in Newfoundland, and Jinx Falkenburg in Panama. Touring the nation's principal cities to raise funds for the Navy Relief Society and the Army Emergency Relief, the Hollywood Victory Caravan composed of 32 film stars, shattered all attendance and box-office records in the history of entertainment. The Hollywood Canteen, like the Stage Door Canteens in New York and other cities, entertains servicemen only and charges no admission fee.

As early as 1930, to help train technicians for the armed forces, the industry's Academy of Motion Picture Arts and Sciences set up the Motion Picture Production Training Corps. Military officers who spent nine months in the film studios, learning all phases of motion-picture production, are now in charge of Army Signal Corps production. The Navy and Marines likewise maintain motion-picture divisions, making strategically valuable films of military action.

Motion-picture directors who have entered the armed services include John Ford, now with the Naval Reserve, who filmed for the government the great documentary picture, Battle of Midway Island; Major Hal Roach; Darryl Zanuck, and Frank Capra, commissioned respectively colonel and major in the Signal Corps. Among the actors are Clark Gable, who volunteered as a private in the Army Air Forces and has since been commissioned, Tyrone Power, Robert Montgomery, Douglas Fairbanks, Jr., Melvyn Douglas, Gene Autry, Burgess Meredith, Robert Taylor, and James Stewart. Hollywood's roll of honor also includes Carole Lombard, killed in an airplane accident while touring the country on a bond-selling campaign.

RADIO

There are over 59 million radios in the United States, nearly two for every family group. An estimated 90 million persons listen regularly.

Radio in the United States is owned and operated privately rather than by the government. The Federal Communications Commission (see page 100) licenses radio stations, allocates wave lengths, assigns frequencies, and determines broadcasting hours. Any person or group may secure a license to operate a radio station, if its operation is deemed by FCC to be in the public interest. FCC requires stations to permit all political parties to state their views freely over the air, and to give equal radio facilities at equal rates to rival political candidates.

There were 919 licensed radio stations in December 1942. About 300 of these are owned or operated by newspapers; the other commercial stations are owned by business groups, individuals, or national or regional networks. Some 50 stations are non-commercial, and are maintained by colleges and universities, religious groups, city school systems, municipalities, or chambers of commerce. Most of these stations broadcast 14 or more hours daily, many of them 24 hours daily, and there is hardly a part of the country where the radio listener cannot choose from several programs at any time.

In peacetime, control over broadcast material was exercised by the radio industry itself, through the National

Association of Broadcasters. The NAB code forbids vulgar language, false or misleading advertising, and slights to any racial or religious group; requires special care to be exercised over children's programs; confines advertising time to a certain proportion of any program; and provides that both sides shall be equally represented in any controversial discussion.

About one-third of the network broadcasts, on the average, are sponsored and financed by advertisers who buy radio time and pay the cost of the program, interspersing brief advertising announcements. The remaining radio time is filled by "sustaining" programs provided by the networks or local stations. These may be entertainment programs or broadcasts in the public interest, either developed by the network or station staff or prepared in cooperation with public service groups or government agencies, and presenting cultural or informative material.

NETWORKS

Two-thirds of the country's radio stations are affiliated with regional or national networks—centralized service organizations which produce programs carried by long-distance telephone wires to affiliated stations for broadcasting. Some stations are affiliated with more than one network.

There are four major networks: National Broadcasting Company with 140 affiliates as of January 15, 1943; Columbia Broadcasting System with 119; Mutual Broadcasting System with 200; and the Blue Network with 146. There are some 40 smaller regional networks, and an Inter-collegiate Broadcasting System linking together the college-owned non-commercial stations.

When an advertiser buys time on a network, his program is broadcast by the affiliated stations, and the network pays its stations from the fee it receives from the advertiser. Networks also produce sustaining programs which are bought by their affiliates. Regional networks produce programs of special interest to the locality they serve.

Like individual stations, the networks apportion their time without favor to any political or religious group. The President of the United States, who has free access to the air whenever he speaks as President, is regarded as a political candidate when he is running for office and receives radio time on equal terms with rival candidates. Typical network policies on religion are those of National Broadcasting Company and the Mutual Broadcasting System which assign stated periods of free time to Catholic, Protestant, and Jewish groups; and of Columbia Broadcasting System, which assigns free time to various faiths according to their membership. Network time is given free to public-service organizations.

PROGRAMS

The daily content of radio programs is as varied as the tastes of the audience. Music predominates, occupying over 40 percent of the broadcast time of the big networks alone. Jazz orchestras and singers are perennially popular and account for about three-quarters of the music provided by the networks. Leaders of jazz or swing orchestras such as Benny Goodman, Harry James, and Duke Ellington are nationally known.

Classical and semiclassical music accounts for about 10 percent of network time. The concerts of the New York Philharmonic Symphony Orchestra over CBS and the NBC Symphony Orchestra under Arturo Toscanini attract wide audiences. During its season the New York Metropolitan Opera is broadcast from the stage of the Opera House each Saturday afternoon.

The drama is also important in radio programming. During the day, popular dramatic shows aimed primarily at an audience of housewives predominate. These programs resemble the magazine serial, with emphasis on suspense at the end of each episode. The heroes and heroines of these dramas take on such reality that listeners often follow their careers as closely as they do the lives of friends or neighbors.

Every form of drama, from the Greek classics of Aeschylus to Broadway plays and current motion pictures, is adapted for radio presentation. In recent years radio has evolved a dramatic form and technique of its own to which such distinguished writers as Archibald MacLeish, Stephen Vincent Benét, Norman Corwin, and others have contributed. The best radio plays are now collected in anthologies.

Radio also reflects the American love of humor. Ranking high in popularity among radio entertainers are such comedians as Jack Benny, Fred Allen, Bop Hope, Eddie Cantor, George Burns and Gracie Allen, Amos 'n' Andy, and Edgar Bergen with his ventriloquist's dummy, Charley McCarthy, who maintain a loyal following year after year.

It is a function of radio to inform as well as to entertain. Along with the press, it performs a valuable service in disseminating information necessary to the free formation of public opinion.

All networks and most independent stations subscribe to the services of the press associations. Many daytime periods ranging from five to fifteen minutes are devoted to news broadcasts. When an important story is developing, radio stations interrupt regularly scheduled programs to broadcast brief news bulletins. The radio networks maintain correspondents in many parts of the world, and often broadcasts will be heard from five or six points scattered all over the globe in the course of one program.

Commentators perform the same function over the radio as columnists do on newspapers. Such commentators as Raymond Gram Swing, William L. Shirer, Raymond Clapper, Dorothy Thompson, Lowell Thomas, Quincy Howe, Major George Fielding Eliot, Samuel Grafton, and others command a large audience.

The democratic American tradition of the discussion group is maintained in radio. In addition to millions who listen in their homes, there are throughout the country several thousand groups who gather to discuss information and viewpoints presented on the air. Most popular among forum programs which have a nation-wide audience are NBC's Town Meeting of the Air and University of Chicago Round Table, CBS's The People's Platform, and Mutual's American Forum of the Air.

Many talks and discussions along informative and cultural lines are presented, with the cost usually borne by the networks or stations as a public service. The nation's leaders in government, the arts, and industry appear before the microphone, discussing matters of current interest or conveying information and instruction on all manner of subjects from astronomy to the current trend in literature.

An outstanding trend in radio entertainment in recent years is the "quiz" or audience-participation, question-and-answer program whereby the audience has an opportunity to satisfy its desire for information while entertained by the battle of wits taking place among experts and celebrities appearing on the program.

Radio has also become a means of education to persons of all ages. Programs supplementary to the regular curriculum are broadcast to school children daily throughout the school year in cooperation with the U. S. Office of Education. Many receivers have been installed in classrooms and auditoriums. There are also educational programs for adults, such as Invitation to Learning, a discussion by scholars of the great books of history; Unlimited Horizons, a program concerning current scientific achievement prepared in cooperation with American universities; and the Inter-

American University of the Air, dealing with music and history of the New World.

FREQUENCY MODULATION

Frequency modulaton has been made practicable by the technical developments of the last few years. Because FM provides better reception and a clearer, truer tone, it is expected to take rank as an important branch of the radio industry after the war.

There are now more than 250,000 FM sets in use throughout the country. From 1941, when the first commercial FM station was licensed, to the end of 1942, more than two score FM stations have come into operation, many of them affiliated with the American Network, which services FM stations only. High-frequency broadcast stations cannot reach so large an area as stations which operate on lower frequencies, and FCC licenses for FM stations specify in square miles the exact area they are permitted to serve.

TELEVISION

In 1939 the Federal Communications Commission began licensing commercial television stations. As of the summer of 1943 there were about nine stations which broadcast regularly and accepted programs sponsored by advertisers. There were also some 30 experimental stations. The two national networks, NBC and CBS, conducted important experimental work, notably CBS's development of color television, which before the war was fast becoming practicable.

Broadcasts before the war included productions from the studio; interviews with men and women in New York City streets by means of portable equipment carried on trucks; speeches by outstanding persons; remote pickups of sports and news events; and broadcasts of motion-picture newsreels, sport films, and short entertainment films. Television audiences were estimated at 40,000, with 6,000 television sets in use, many installed in public places.

Television activities have been sharply curtailed by the war, but about nine stations are still broadcasting several hours each week, including the NBC and CBS stations in New York City and the General Electric station in Schenectady, New York.

These broadcasts, though including some entertainment programs, consist principally of information relative to the war. Air-raid wardens and fire fighters in New York City have been trained through television programs broadcast from the studios.

Developments, many of them secret, have been made in military aviation and navigation which, when applied to television after the war, are expected to solve many technical problems. Rapid expansion of the television industry, which may create as large a television audience as now exists for radio, is expected after the war.

WARTIME RADIO

The vast facilities of the radio industry have been mustered in support of the nation's war program, on a basis of voluntary cooperation with the government. Radio time, donated by the stations or contributed by advertisers, is used to acquaint the people with the nature of their enemy and of their Allies; to inform them as to the progress of United States war activities; and to enlist their support for necessary civilian war activities, such as salvage drives, etc.

Radio permits the people to hear reports on the war directly from their leaders. President Roosevelt's first speech after the attack on Pearl Harbor drew the greatest radio audience of all time, an estimated 62,100,000.

The Army, the Navy, and other federal departments, such as the Treasury and the Interior, use radio time to acquaint the public with their activities. Until enlistments were suspended, radio was an important recruiting medium for the armed forces. Programs direct from Army camps acquaint the audience with Army life.

Radio disseminates information about war bonds and stamps, rationing, scrap collection, air-raid precaution regulations and signals, labor needs, needs for volunteer civilian workers, and other types of war activity. Radio talent of every type, from the popular comedian to the commentator on classical music, helps to emphasize these war needs. Characters from the serial daytime sketches broadcast information of particular value to housewives. Even the children's programs have been mobilized for war, appealing to youngsters to do their share.

In a typical weekly program, there were presented 603 network war shows: 202 newscasts, 173 commentators, 54 war sermons, 29 programs originating in Army camps, 15 government shows, and 130 commercially sponsored entertainment programs on war themes.

In the late 1930's the networks began to combat enemy propaganda in broadcasts to Latin America. Now CBS has 96 affiliated stations in Latin America, NBC has 140. Latin-American broadcasts are also made by the Office of the Coordinator of Inter-American Affairs.

Operating 16 short-wave transmitters, the Office of War Information sends abroad 2,700 programs weekly in 24 languages. Known collectively as the Voice of America, these broadcasts consist of straight factual material about war developments, the U. S. war program, and plans for postwar reconstruction.

Short-wave radio entertainment for U. S. troops abroad is provided by OWI and the Army's Special Services Division. The Army produces shows such as G. I. (Government Issue) Jive, a jazz program; and Jubilee, Command Performance, and Mail Call, all-star shows to which outstanding entertainers contribute their services. OWI puts on News From Home, which brings soldiers intimate, personal information about their homes and families.

Voluntary censorship rules established by the National Association of Broadcasters before the war have now been made official by the government censorship code, which forbids broadcasts about movements of troops, ships, and planes; fortifications; or other data which might prove of value to the enemy. Other aspects of American war activities, however, are freely discussed over the air, as in the nation's press, thus maintaining the American tradition of free speech insofar as is compatible with military safety. (See also page 100.)

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RECREATION

Before war needs led to the lengthening of working time, the eight-hour day and the five-day week were becoming standard. Housewives, too, had considerable leisure through use of labor-saving devices. To further worth-while use of this leisure, federal, state, and local governments were accepting responsibility for providing recreation opportunities by developing public lands, constructing recreation centers, and sponsoring broad recreation programs. Churches, schools, public-service organizations, business and industrial concerns, labor unions, and other groups assisted in making recreation opportunities available. Recreation activities were varied, and nearly every type of sport or hobby had its own

group of devotees and its own national or local organizations.

With the coming of war, leisure time has been reduced, and recreation habits have altered. Pleasure driving has been materially reduced to conserve gasoline and rubber. Formal entertainment is less frequent, giving place to informal family and neighborhood gatherings. The American people, eager to obtain information on the war and on postwar planning, spend more time reading and listening to the radio. In sports and other physical activities, there is more emphasis on maintaining physical fitness for war activities. These changes are not completely reflected in the following data, which present typical peacetime recreation activities.

SPORTS

Americans show tremendous enthusiasm for competitive sports, participating in them widely and thronging to watch both amateur and professional contests. The entire nation follows championship matches in baseball, football, tennis, and boxing. Every type of game, including such specialized sports as fencing and water polo, has its followers. Standards in non-professional competition are maintained by the Amateur Athletic Union, the Intercollegiate Athletic Association, and similar organizations. Professional baseball, football, boxing, and hockey are commercially organized and draw large crowds.

BASEBALL

The American national game, baseball, is played in sand lots by youngsters after school, by grade-school, high-school, and college teams, and by teams from offices, factories, and social clubs. Professional baseball, organized as a business, draws a total attendance of some 60 million yearly.

Professional baseball players work under contract to baseball clubs—organized business groups which pay players' salaries, usually maintain stadiums where games are played, and meet other expenses out of attendance receipts. These clubs are organized into leagues, or groups of teams.

The two major leagues are the American and the National, each composed of eight teams. Winners in each league meet each autumn in the World Series, and the first team to win four games becomes national champion. The World Series is the blue-ribbon attraction of American sport; in the autumn of 1942 it attracted 276,000 people to the five games played. Nearly 70,000 people attended one World Series game played in the Yankee Stadium in the Bronx, New York City.

BASKETBALL

Basketball is played more widely than any other team game. Though less commercialized than baseball, and less able to attract great crowds to single games, it draws a total yearly attendance of 90 million, a record for all sports. At night and during the winter, basketball is played indoors. Sufficiently exciting to appeal to men, it is also popular with girls and children, who play it according to different, easier rules.

There are perhaps 70,000 basketball squads in the country, most of them made up of amateurs who play for recreation. Colleges, grade schools, high schools, Y. M. C. A.'s, athletic clubs, and industrial organizations maintain basketball squads. Nearly every school building, commercial gymnasium, municipal recreation center, playground, and settlement school has a basketball court.

FOOTBALL

American football, very different from either the English Association or Rugby, is played chiefly in October and November.

Inter-sectional college rivalry holds the center of the stage in football. Most colleges maintain student football teams, and gate receipts go to the colleges. Each year sports writers decide on a mythical All-American team, made up of the best college players in each position. Football is still played in some colleges, but in many it has become a temporary war casualty.

Student football teams are maintained by most high schools, and regional rivalry among high schools arouses strong local interest.

Professional football, not so widely organized as professional baseball, is comparatively recent. Salaried players work under contract to clubs. Champions of the Eastern and Western divisions of the National League, major football organization, meet for the annual national professional championship game. College, high-school, and professional games draw an estimated total annual attendance of 45 million.

BOXING

Boxing matches draw 22 million spectators yearly, and the heavyweight title holder is a national figure. Prominent recent champions include Joe Louis, who entered the Army undefeated; Gene Tunney, who retired undefeated and now serves in the Navy; and Jack Dempsey, now in the Coast Guard.

SOFTBALL

Softball was promoted by the National Recreation Association to meet the need for a game similar to baseball which can be played on a smaller diamond by unskilled players. It is enjoyed particularly by older men, and most American cities have their "slow-pitching" softball leagues. Like basketball, softball is primarily an amateur sport.

RACING

Horse racing attracts 15 million spectators yearly; dog racing and dog shows, 10 million; auto racing, 2 million; and bicycle racing (including six-day bicycle races, in which contestants circle an indoor track), 4 million.

OTHER SPORTS

Almost as many women as men engage in sports for recreation, and nearly every man or woman who is physically fit has some favorite sport. It is estimated that 12 million persons fish; 4 million take out hunting licenses; 15 million bowl; 4 million play golf; 30 million swim; 3 million play tennis; 10 million own bicycles.

Hiking clubs enroll thousands of members. A recent development is the Youth Hostels, inspired by those of prewar Europe, which are spaced a day's hike apart and provide cross-country walkers with food and lodging for a small sum.

OTHER PASTIMES

MOTORING AND VACATIONS

In 1942, there were almost 27½ million passenger cars in use. Pleasure driving over more than a million miles of surfaced highways was a favorite recreation, now practically eliminated by the need to conserve gasoline and rubber.

Labor standards, before the war, were coming to include for the average worker an annual paid vacation of one or two weeks, a standard which had long been in effect among office and professional workers. An estimated 30 million persons took annual vacations.

The typical American vacation is a family affair. Before the war, millions of automobile tourists crowded the roads

in summer. Favorite vacation destinations were the state and national parks and forests. Most of these offer foot and horseback trails, facilities for water sports and winter sports, free camping areas, and inexpensive restaurants and cabins.

Thousands of privately operated summer resorts in mountain, lake, forest, or seaside areas offer reasonably priced accommodations, and many religious, industrial, and labor organizations maintain resorts for their membership on a non-profit basis.

HOBBIES

Americans find practical as well as recreational value in their hobbies. Gardening and needlework are especially popular now that women are growing their own vegetables and knitting or sewing for the Red Cross. Makers of model airplanes, who number 8 million, found their handiwork of value in training aircraft spotters. Many of the 30 million craft hobbyists, particularly those with well-equipped home workshops, are doing war-production subcontracting work. Others have found a craft hobby valuable training in shifting from prewar nonessential work to factory jobs.

The American Radio Relay League, which includes 26,000 of the 60,000 amateur radio operators licensed during peacetime, helps maintain communication when floods or storms interrupt telephone or telegraph service. (See page 100.) Various scientific associations receive and correlate the observations of nature hobbyists, many of whom have made valuable scientific contributions.

Other favorite hobbies are photography, which attracts 20 million persons; amateur music-making, 10 million; and stamp-collecting, 5 million.

COMMUNITY PROGRAMS AND FACILITIES

Public facilities for recreation are available in most communities, and many community play centers include outdoor playgrounds, recreation buildings, athletic fields, bathing beaches, golf courses, indoor pools, tennis courts, and baseball diamonds. Twenty-six thousand municipal recreation leaders are employed throughout the country in addition to over 32,000 part-time volunteers. The National Recreation Association reported a total expenditure of $34,824,829 for community recreation facilities and programs in 1942.

WPA RECREATION PROGRAM

In launching its emergency unemployment-relief program, the Work Projects Administration (1935-43) undertook to provide facilities for nearly all types of indoor and outdoor recreation. Eight thousand new community recreation buildings were erected, more than 5,000 existing community recreation buildings (including 500 auditoriums and 900 gymnasiums) renovated. Nearly 8,000 parks and more than 12,000 playgrounds were constructed or improved.

More than 2,800 new athletic fields were constructed. Twenty thousand handball, horseshoe-pitching, and tennis courts; swimming and wading pools; golf courses; ski runs and jumps; and band shells were provided or improved.

The WPA recreation program, now abandoned as war needs have taken up employment slack, included leisure-time programs operated in cooperation with state and local agencies. Community advisory committees of representative citizens helped to survey recreation needs and plan programs. These included music, drama, craft, and hobby work as well as games and sports.

INDUSTRIAL RECREATION

Broad recreation programs for employees are provided, frequently under a director of recreation, by many large industrial concerns. Thousands of smaller companies maintain lounge rooms, encourage the formation of athletic teams, and sponsor excursions, parties, and picnics.

Bowling, softball, basketball, baseball, golf, table tennis, and dances are among the favorite recreations of industrial groups. Frequently athletic teams from various departments engage in competition. Company teams also compete with one another.

The National Labor Relations Act bars employers from using recreation programs or recreation associations as a means of discouraging unionization or influencing employees on union policies.

UNION-SPONSORED RECREATION

Union-sponsored recreation reaches millions of workers. How many cannot be estimated, since not only union locals but individual shops frequently maintain programs of study and recreation in response to the individual interest of the membership. Many headquarters of union locals include such recreation facilities as bowling alleys, auditoriums, and gymnasiums. Other union groups utilize municipal or commercial facilities.

Typical outgrowths of union interests are instrumental and choral music groups, hobby groups, dramatics, bowling, basketball, table tennis, dances, lectures, and study groups.

Outstanding among union recreation programs is that of the International Ladies' Garment Workers' Union which maintains a dramatic group, Labor Stage, in New York City, whose productions reach a high professional level. On a non-profit basis ILGWU operates Unity House, a summer resort in the Pocono Mountains of Pennsylvania. Various ILGWU locals maintain 102 music groups, 30 dramatic groups, 284 athletic groups, 58 dancing groups, and 494 study groups—a total of nearly 1,000 recreation groups.

Union recreation programs now center on keeping war workers physically fit. Typical of war recreation work is the Keep Fit for Freedom program of the Congress of Industrial Organizations, developed in New York City and taken up by CIO locals throughout the nation. The program stresses swimming, team games, and other health-building activities.

The work of unions, churches, and public-service organizations; the WPA and other government programs; and the development of community recreation facilities have extended opportunities for recreation to people of every income group. The present nation-wide program of physical fitness, accelerated by the war, is only a further development of the basic goal of providing every American with opportunity for relaxation and healthful enjoyment.

RECREATION FOR ARMED FORCES AND WAR WORKERS

Through the Division of Recreation of the Federal Security Agency, the federal government has helped communities near training camps and war production centers set up recreation service for uniformed men and women and industrial workers. When existing facilities are inadequate, the government, through funds made available by the Lanham Act, provides recreation centers. Mostly for servicemen, 264 of these recreation centers have been constructed at a cost of approximately 25 million dollars.

Some 1,173 war recreation committees throughout the

country correlate community recreation programs for men and women of the armed forces, which include sports, information centers, dances, home hospitality, dramatics, reduction of rates at motion-picture theaters and other commercial recreation enterprises, and church socials. Some 400 communities in maneuver areas have been assisted in planning for soldiers' needs during rest periods.

Special recreation facilities are also provided by communities for industrial workers and their families. Municipal recreation centers adjust their athletic schedules to provide for men and women working on night shifts; special classes are given to improve the physical condition of men likely to enter military service; shows are arranged for workers during their lunch hours; and arrangements are made to meet the leisure-time needs of the children of war workers. Special attention is being given to programs in housing projects, trailer camps, and dormitories.

Recreation services for the armed forces are also provided by United Service Organizations, composed of six cooperating national groups: Young Men's Christian Association, Young Women's Christian Association, National Catholic Community Service, Salvation Army, Jewish Welfare Board, and Travelers Aid Association. By August 1943, USO had established 1,079 clubs for servicemen and women (120 of them overseas), generally with sports facilities, games, and a free canteen staffed by volunteers; 118 Troops-in-Transit lounges in railroad and bus stations; 141 Travelers Aid Services; 110 Mobile Service units bringing books, magazines, games, and movies to men in detached guard units; 5 Maneuver Services bringing amusement to soldiers on maneuvers. In addition, many volunteer organizations of women provide canteen services throughout the country.

The American Red Cross has developed a widespread recreation program in the U. S. and abroad, including Service Clubs near concentrations of American troops abroad; Rest Homes for over-fatigued men; on-camp Recreation Centers; Clubmobiles for outpost camps; and Cinemobiles.

Camp Shows, Inc., an organization composed of about 1,000 professional entertainers supported by USO funds, is the official agency designated by the War and Navy Departments to furnish free, live entertainment to servicemen within military and naval reservations. Playing six days a week, several shows a day, they follow regular circuits around the camps at home and abroad.

Motion-picture houses and restaurants frequently offer reduced prices to members of the armed forces, and often set aside a day when they are served or admitted without charge. Leading entertainers contribute their services at gatherings of servicemen and women. The Stage Door Canteen and the Music Box Canteen in New York City are open only to the armed forces, charge nothing, and offer a program of entertainment headliners which could be matched by no commercial venture. Other cities have similar free canteens.

* * *

SALIENT FACTS

Note: Following are useful facts and figures on the United States, largely taken from the Handbook section headed "The United States in Peace and War." For further details, consult the chapters indicated.

AGRICULTURE

ACREAGE: 342 million acres in crops in 1942.

DEHYDRATION: More than 150 food dehydration plants in operation in 1943.

ELECTRIFICATION: More than 37 percent of farms are served by electricity.

FARMS: 6 million farms; 12 million farm workers.

MACHINERY: More than 1¾ million tractors in use on farms.

PRODUCTION: In 1942: 120 billion pounds of milk; 22 billion pounds of meat; 4,500,000,000 dozen eggs. Goals for 1943 called for an increase of 2 billion pounds of milk, 3,700,000,000 pounds of meat, 4 million acres of corn, 2 million acres of oil-producing soybeans, peanuts, flaxseed.

TRENDS: 70 percent of population engaged in agriculture 100 years ago, under 25 percent today, yet productivity is higher.

ARMY

SIZE: In August 1943, there were almost 9 million men in the armed forces. The Army alone announced a goal of 8,200,000, by the end of 1943. On June 1, 1943, over two million U. S. troops were overseas.

WOMEN'S RESERVE: WAC made part of Army on July 2, 1943. 65,000 in service by June 1943.

CIVILIAN DEFENSE

CIVIL AIR PATROL: 87,000 men and women, amateur flyers and ground personnel, carry on anti-submarine coastal patrol, extended courier and cargo service.

VOLUNTEERS: 5½ million men and women in civilian defense work include air-raid wardens, first-aid workers, airplane spotters, auxiliary firemen and police.

COMMUNICATIONS

OCEAN CABLE: Of world's 500,000 miles of ocean cable, 92,000 are operated by 6 companies which serve U. S.

POSTAL SERVICE: 43,000 post offices and stations. In 1942 air mail was flown 89 million miles over 44,623 miles of routes.

RADIO: 59 million receivers; over 900 broadcasting stations.

SHORT-WAVE RADIO: 21 major U. S. short-wave stations were in the foreign-broadcast service in 1942, and 15 more were under construction. Under centralized control, they direct transmissions to all parts of the world in 24 languages.

TELEGRAPH: System in 1942 embraced 250,000 miles of line, 40,000 offices and agencies.

TELEPHONE: 24½ million telephones in 1941; about half world's total. Two out of every five U. S. homes have telephones.

VOLUME: In 1942, 40 billion telephone calls, 218 million telegrams, 8 million cablegrams, 5 million radiograms, 323,000 domestic and foreign radiotelephone calls were handled in United States.

CONSERVATION

DAMS: U. S. has built more than 160 dams which store water for irrigation, hydroelectric power, inland navigation.

FLOOD CONTROL: From June 1931 to June 1941 the U. S. government spent 566 million dollars for reclamation projects, about $1,881,000,000 for river and harbor work and flood-control projects.

FORESTS: 630-odd million acres of forest land. Of this, about one-third is industrially owned and commercially operated, another third is national property. Of the 228 million acres in 160 national forests, Forest Service of the Department of Agriculture administers 177,650,000 acres.

PUBLIC DOMAIN: Federal government owns 411 million acres of land.

SOIL CONSERVATION: In recent years the Soil Conservation Service has improved more than 32 million acres of farm land which had deteriorated through wind or water erosion or soil exhaustion.

TIMBER: About 1,250,000,000 board feet of timber cut in national forests every year.

TVA: Tennessee Valley Authority has provided hydroelectric power, improved navigation, developed flood control affecting 41,000 square miles in 7 states. It has also done a great deal to develop new fertilizers.

WILDLIFE: 252 federal refuges for migratory birds, comprising 7 million acres, and 14 big-game reserves totaling 6,642,138 acres.

EDUCATION

ADULT EDUCATION: An estimated 30 million adults take courses provided by government agencies, private welfare agencies, forums, and schools.

BOOKS: 225 million books purchased annually; 9,525 new titles published in 1942, 5,015 in the first seven months of 1943.

DEGREES AWARDED: In 1940, U. S. colleges and universities conferred 216,521 degrees: 186,500 bachelor's; 26,731 master's; 3,290 doctorates.

FINANCIAL DATA: Total investment in U. S. educational system (buildings, equipment, endowment) is more than 14 billion dollars. Public education is normally the largest item on community budgets; average yearly expenditure in 1940-41 for each elementary and high-school pupil: $92.38.

GRADUATES: 3,930,000 living college graduates in 1940, and 21,070,000 additional living high-school graduates.

LIBRARIES: 16,265 institutional libraries. Public libraries throughout the country own 106 million books, service 26 million borrowers. College and university libraries own 63 million books.

MILITARY: In August 1943, 100,000 soldiers were getting special college training at government expense. In July, a similar naval program included nearly 80,000 men.

OLDEST COLLEGES: Harvard (founded 1636); William and Mary (1693); Yale (1701).

SCHOOL ATTENDANCE: In 1941, nearly 21 million students in elementary schools; 7 million in secondary schools; 1½ million in colleges.

SCHOOLS: More than 240,000 schools in U. S., of which more than 90 percent are public institutions. Chief categories: 223,295 public elementary and secondary schools, including kindergartens; 1,751 universities, colleges, and professional schools; 3,568 private high schools; 2,099 private commercial schools (estimated).

FINANCE AND TRADE

BANKS: 14,728 banks and trust companies, of which 13,466 have federal insurance protecting depositors' accounts up to $5,000.

EXPORTS: $4,500,000,000 worth in first 5 months of 1943, a 58 percent increase over corresponding 1942 period.

IMPORTS: $1,250,000,000 worth in first 5 months of 1943, 4 percent more than same period 1942.

LIFE INSURANCE: 125 billion dollars' worth in 1942.

FEDERAL DEBT: Increased from $48,500,000,000 in June 1940 to $140,800,000,000 in June 1943; is expected to reach 207 billion dollars in June 1944.

STOCKHOLDERS: 10 million Americans own stock in one or more corporations.

TAXES: Federal taxes increased from $5,400,000,000 in 1940 to 22 billion dollars in 1943. Taxes in 1944 will be about 38 billion dollars, or about 35 percent of total expenditures and slightly less than 25 percent of estimated national income. State and municipal taxes run to about 10 billion dollars annually.

U. S. OUTLAY: Federal expenditures for all government activities for fiscal year ending June 30:

	Total
1940:	$ 9,000,000,000
1943:	78,179,000,000
1944: est.	104,000,000,000

(Of the 1944 estimated total, $97,000,000,000 is earmarked for war expenditures.)

WAR BONDS: $700,000,000 worth of bonds sold monthly; 31,200,000 workers buy them regularly through voluntary payroll deductions.

GEOGRAPHY

LAND AREA: 2,977,128 square miles (continental U. S.).

HIGHEST POINT: Mt. Whitney, California, 14,501 feet above sea level.

LOWEST POINT: Death Valley, California, 276 feet below sea level.

REGIONS: Northeast has about 6 percent of total national land area, about 28 percent of total population; Middle West has over 15 percent land, about 27 percent population; South has about 30 percent land, 32 percent population; West has about 50 percent land, 14 percent population.

HOUSING

GOVERNMENT PROGRAM: Coordinated federal program has produced nearly half a million housing units for ill-housed families since 1933.

LOANS: Federal Housing Administration has made repair and improvement loans to 4,300,000 farm and business property owners. These have aggregated more than $1,700,000,000.

LOW-RENT HOUSING: Between 1933 and America's entry into war, 560 public low-rent housing projects were completed and occupied by 132,000 families.

WAR HOUSING: National Housing Agency responsible for providing more than 3 million accommodations for essential war workers. 940,000 additional accommodations planned for 1943-44.

LABOR

COLLECTIVE BARGAINING: National Labor Relations Board has held 13,727 elections for over 4 million workers, who voted to select organizations to represent them in collective bargaining with employers.

CONCILIATION: U. S. Conciliation Service, Department of Labor, handled 12,677 industrial disputes involving 8,677,333 workers in 1942. 1,076 of these were certified to the National War Labor Board.

LABOR-MANAGEMENT: In November 1943, labor-management committees helped to increase production in 3,060 factories and mines.

UNIONS: More than 14 million workers are union members—6,631,100 in American Federation of Labor, 6,435,00 in Congress of Industrial Organizations, more than 1½ million in independent organizations.

WAR CONTRIBUTION: Nearly 100 percent of all wage earners devote 10 percent of their wages to war bonds.

WORK STOPPAGES: Time lost as a result of strikes in 1942 was 6/100 of 1 percent of total time worked.

LEND-LEASE

COST: Lend-lease materials account for estimated 12 percent of America's war costs.

RATE OF AID: U. S. is extending lend-lease aid at the rate of 12 billion dollars a year and is receiving valuable reciprocal lend-lease aid from other countries. The British Commonwealth of Nations and 39 other countries—embracing three-fourths of the earth's surface and more than three-fifths of its people—are eligible for this aid.

MANPOWER

LABOR FORCE: In August 1943 some 63 million Americans were working in jobs of all kinds. Of these, almost 9 million were in the armed forces. In July 1943 the War Manpower Commission estimated that 3,200,000 additional war workers would be required by July 1944 to meet production needs.

WOMANPOWER: Of the nearly 52 million U. S. women 14 years of age and over, about 15 million are already part of the labor force and 2⅓ million are working on farms. One million more must take jobs in 1943.

UNEMPLOYMENT: 1,000,000 unemployed—almost all mentally or physically incapable of working.

MEDICINE

BLOOD PLASMA: More than 4 million pints of blood collected by December 1943. Donor centers operate in 33 cities, collect 95,000 pints a week.

DOCTORS: 180,000. Some 53,000 will eventually be in the armed forces.

HOSPITALS: 6,345, with 1,383,827 beds.

NURSES: Registered nurses, 259,174; practical nurses, 22,161.

RESEARCH: Total grants for medicine and public health contributed by some of America's 314 foundations in 1940 were $12,273,590. Medical research is carried on in over 2,500 laboratories.

NAVY

COAST GUARD: Peacetime strength: 18,000 men; more than 500 vessels of all types. Now greatly expanded as part of Navy.

MARINE CORPS: Peacetime strength: 1,500 officers; 38,000 men. Personnel in midsummer 1943: 315,200.

NAVAL VESSELS: 3,193 ships in service, May 1943; estimated total, July 1944: 5,100.

TOTAL PERSONNEL: By summer 1943, total Navy personnel totaled 2,250,000 men and women.

WOMEN'S RESERVES: SPARS (Coast Guard); WAVES (Navy); United States Marine Corps Women's Reserve.

PEOPLE

DISTRIBUTION: 1940 census lists 56.5 percent of population in places of more than 2,500; 23 percent on farms; 20.5 percent (non-farmers) in places of less than 2,500.

FOREIGN BORN: 11 million in 1940.

INDIANS: 361,000 today, all U. S. citizens.

NEGROES: Nearly 13 million, 97 percent of U. S. parentage.

POPULATION: 135 million according to 1943 estimates.

POWER

BOULDER DAM: 726 feet high (world's highest). Total generating capacity will eventually be 1,835,000 kw.

CAPACITY: July 1943: Of total 48 million kw. capacity, 9 million kw. publicly owned, 38 million kw. owned by private utilities, 1 million owned by railroads, factories, etc.

TVA: Installed capacity of Tennessee Valley Authority generating plants: 1,636,000 kw.; and eventually it will be 2,800,000.

PRODUCTION: Production for public use, fiscal year 1942-43: 200,858,000,000 kilowatt hours.

PRESS, MOTION PICTURES, AND RADIO

FILM EMPLOYEES: 200,000, with 30,000 in production, 14,000 in distribution, the rest in theaters throughout the country.

FILM PRODUCTION: In peacetime, more than 500 full-length feature films annually and more than 700 short films.

MAGAZINES: 6,354, including 20 general magazines with circulation of more than 1 million each.

NEWSPAPERS: 2,026 dailies, of which 1,894 are in English; 10,196 weeklies. Americans purchase 44 million papers daily; morning, 17½ million; evening, 26½ million.

RADIO: 59 million radios (nearly two for each family group), including 250,000 frequency-modulation sets.

TELEVISION: 6,000 receiving sets in use by end of 1941. Now some 30 experimental stations, plus nine regular broadcast stations.

PRODUCTION

DETROIT: September 1943: Auto industry producing for war at rate of $9,300,000,000 worth of goods a year. July 1943 production of war goods valued at $775,000,000.

EXPENDITURES: 42 billion dollars spent for war purposes in first half of 1943. Total to then, 110 billion dollars.

NEW PLANTS: War expansion program: $18,500,000,000 for new plant construction and old plant expansion in 1942. By June 1943, the program was more than 80 percent completed.

SHIPPING: Shipyards produced 8,089,732 tons of merchant shipping in 1942, 10,482,741 tons in the first seven months of 1943. A West coast shipyard built and launched a 10,500-ton Liberty ship in 4 days, 15½ hours.

SMALL PLANTS: In year ended June 1943, 8,300 firms received prime contracts or subcontracts, totaling more than a billion dollars, through the direct efforts of the Smaller War Plants Corporation.

TOOLS OF WAR: 1942 production: 48,000 military airplanes; 32,000 tanks and self-propelled artillery. Since the war began: 160,000 high caliber artillery, 1,300,000 machine guns, 5 million rifles and sub-machine guns.

PUBLIC HEALTH AND VITAL STATISTICS

CLINICS: Estimated 8,000 public clinics.

DEATH CAUSES: Leading causes in 1940, per 100,000 population: heart diseases, 292.5; cancer, 120.3; cerebral hemorrhage and softening of brain, 90.9; nephritis, 81.5; influenza and pneumonia, 70.3; tuberculosis, 45.9.

DEATH RATE: 10.3 per 1,000 in 1942.

HEALTH SERVICES: 60 percent of 3,072 U. S. counties have full-time public health services.

INFANT DEATHS: Only a few more than 40 of every 1,000 babies born alive die in their first year.

LIFE EXPECTANCY: An infant now has 63.77-year life expectancy, nearly 20 years more than that of a 1900 infant.

MATERNAL DEATHS: 2 maternal deaths per 1,000 live births in 1942, new low rate for U. S.

RAW MATERIALS

ALUMINUM: 1939 production: 400,000,000 pounds. 1942 output: 1,400,000,000 pounds; goal for 1943: 2,500,000,000 pounds.

COPPER: 1942 production: more than 2 million tons. Goal for 1943 is over 2½ million tons.

LEAD: 1942 production at the rate of 1,308,000 tons a year.

MAGNESIUM: 1939 production only 6,700,000 pounds. New uses caused production to soar to 105 million pounds in 1942.

PETROLEUM: 1941 production: about 1,400,000,000 barrels of crude oil. U. S. produces two-thirds of world's petroleum. At beginning of 1942, U. S. was producing 40,000 barrels of 100-octane aviation gasoline daily—an output now vastly increased.

STEEL: 1942 production: 86 million tons of ingot steel. Production for 1943 estimated at 90,000,000 tons.

WORLD LEADER: U. S. leads normal world production of aluminum (probably), coal and coke, copper, cotton, helium, lead, lumber (probably), magnesium (probably), molybdenum, petroleum, phosphates, salt, steel, sulphur, zinc.

RECREATION (*Peacetime Figures*)

HOBBIES: 8 million model airplane makers, 30 million craft hobbyists, 60,000 licensed amateur radio operators, 20 million amateur photographers, 10 million amateur musicians, 5 million stamp collectors.

SPORTS ATTENDANCE: Professional baseball attracts 60 million Americans yearly; basketball, 90 million. Football attracts 45 million; boxing, 22 million; horse racing, 15 million.

SPORTSMEN: 12 million Americans go fishing; 4 million take out hunting licenses; 15 million bowl; 4 million play golf; 30 million swim; 3 million play tennis; 10 million own bicycles.

RELIGION

ALL FAITHS: 256 different religious bodies, 249,887 churches, total membership 67,327,719.

CATHOLIC: *Roman:* 22,945,247 members, 18,976 churches, 36,970 priests, 129 bishops, 21 archbishops, 2 cardinals. *Eastern Orthodox:* 1,158,635 members, 777 churches.

JEWISH: 4,641,184 members, 3,728 congregations, 3,000 rabbis.

PROTESTANT: 36,793,661 members in congregations of 50,000 or over; 204,579 congregations.

SMALL SECTS: 204 different bodies with 1,700,000 members.

MISSIONARIES: Over 33,000 Catholic, over 27,500 Protestant missionaries serving abroad in 1938.

SCIENCE

NOBEL PRIZES: 15 Americans have received Nobel awards for scientific achievements.

OSRD: Office of Scientific Research and Development spends about 100 million dollars annually on research contracts let to various institutions.

RESEARCH: 2,500 academic, industrial, and government laboratories; some 300 million dollars spent for industrial research annually.

SCIENTISTS: 500,000 listed in National Roster of Scientific and Specialized Personnel in 59 special fields.

TRANSPORTATION

AIR TRANSPORT: 32,000 miles of lighted airways, with more than 2,200 airway beacons.

ALASKA HIGHWAY: 24 feet wide and 1,671 miles long, begun March 9, 1942, opened October 29, 1942.

AUTOMOBILES: 29,507,113 passenger cars and 4,876,054 trucks, nearly four-fifths of world's motor vehicles, registered in 1941. Estimated 1942 registration: 27,400,000 cars, 4,600,000 trucks.

LOCAL TRANSIT: Use of passenger transportation up as much as 622 percent over 1938 in some cities.

MERCHANT SHIPS: 1,150 ocean-going ships, totaling 7 million gross tons in January 1941. In 1941, 103 ships totaling 1,160,943 deadweight tons were delivered; in 1942, 746 ships totaling 8,089,732 deadweight tons. Schedule for 1943 calls for 19 million deadweight tons of new ships.

PUBLIC ROADS: 3 million miles of non-urban roads

STEAM RAILROADS: 132 major roads; 231,861 miles of road; 1,690,570 serviceable cars; 27,758 passenger cars.

TROOP MOVEMENTS: About two million troops a month travel the railroads in official troop movements.

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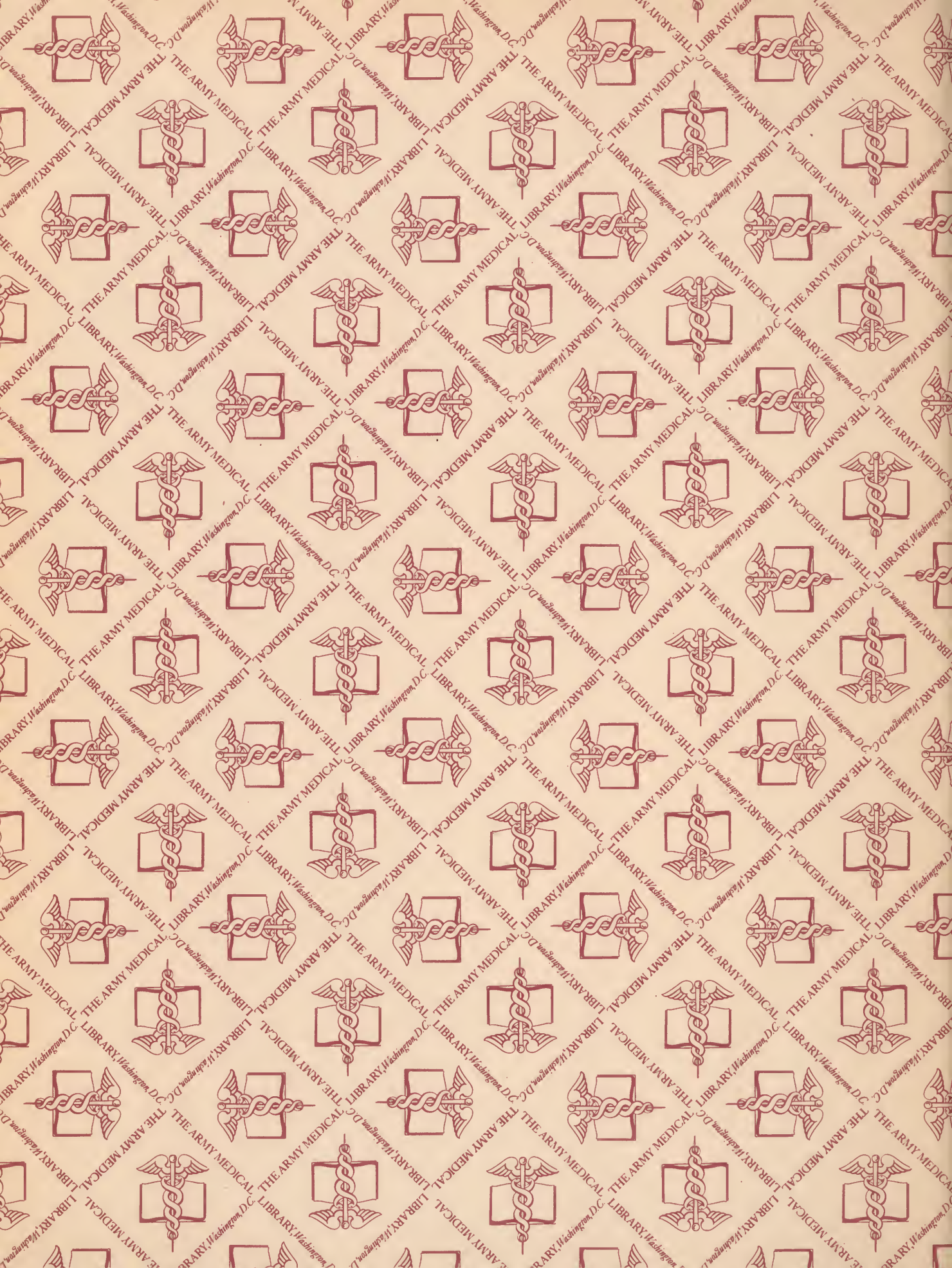
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